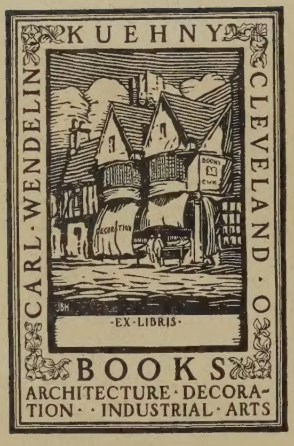
ENGLISH CHURCH ARCHITECTURE

FRANCIS BOND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An Introduction to English Church Architecture

From the Eleventh to the Sixteenth Century

by

Francis Bond, M.A., F.G.S., Hon. A.R.I.B.A.

Formerly Exhibitioner of New College, and
Scholar of Lincoln College, Oxford

Author of

"Gothic Architecture in England," "Cathedrals of England and Wales,"
"Screens and Galleries in English Churches," "Fonts and Font Covers,"
"Stalls and Tabernacle Work," "Misericords," "Westminster Abbey"

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CHAPTER VIII

THE PIER AND ITS MEMBERS

PART II.—THE CAPITAL

THE piers of a mediæval church are often considerably less thick than the pier-arches and clerestory walls which they support; *e.g.*, in Lincoln choir the piers are 2 ft. 8 in. thick, the arches over them about 3 ft., and the clerestory wall 4 ft. 7 in. thick. The primary function, therefore, of the capital is to provide a surface broader than that of the pier, on which to build the springers of the pier-arches and the clerestory wall. Artistically, the capital is valuable because it demarcates the support from the load: this is especially so where the arch and the pier are different in plan;[1] the junction of two dissimilar sets of moldings would have an unpleasant effect but for the interposition of a capital; as also would the juxtaposition of the vertical line of the pier with the curve of the arch. Nevertheless, in some work, chiefly of late date, the capital is omitted, the moldings of the arch being continued down to the ground.

Pantheon

SECTION I.—ROMANESQUE CAPITALS

Of these the chief varieties are: (1) Corinthianesque capitals; (2) Cubical and Scalloped capitals; (3) Capitals with Interlacings; (4) Capitals with Figure sculpture; (5) Capitals with Naturalistic foliage.

CORINTHIANESQUE CAPITALS

These are of ancient and honourable lineage, being descendants of the famous Corinthian capital of Greece. Even in Greece, however, there was no standardised Corinthian capital; the discrepancies are great between such capitals as those of the

[1] They are seldom identical in plan, where a capital is employed; an example, however, occurs in the Lady chapel of Long Melford, Suffolk; and this treatment is common in Devon and Cornwall.

Temple of the Winds, the Choragic monument of Lysicrates at Athens, and those of the temple at Bassæ. And when they were adopted in Roman art, many modifications were made; in particular the volutes were frequently much enlarged so as to better support the angles of the abacus, producing a variant termed the *Composite* capital; typical examples of which occur in the Thermæ of Diocletian at Rome, now the church of S. Maria degli Angeli. In the Lower Empire yet further liberties were taken with this capital; *e.g.*, for the volutes sometimes were substituted horse heads, rams' horns, dolphins and the like; and very frequently, with the decay of sculpture and every form of art, all the difficult detail was omitted, and the design was reduced to its simplest elements; this was so sometimes even at Rome itself, *e.g.*, in the capitals of the Colosseum and Pantheon, where the veining and serration of the acanthus leaf are omitted (487). It was usually these debased capitals of the Lower Empire scattered about throughout the Roman world, and not the Classical capitals, the design of which the Romanesque carvers endeavoured to reproduce; the capital from S. Maria in Trastevere, Rome (489), probably work of the second century, may serve as an example. An interesting series of archaic Corinthian capitals may be seen in St. Remi, Reims, to which the date A.D. 1005 may be assigned,[1] copied no doubt, so far as the skill of the craftsman went, from examples in Roman buildings in the city, such as the still surviving city gateway (489). But in districts where Roman art had produced good work, and where there was good freestone, and where, therefore, masoncraft stood high, Corinthian capitals of high quality both in design and execution were produced in the twelfth century, especially in Burgundy, Toulouse, and Provence; sometimes quite indistinguishable from genuine Roman capitals of the best period; such are those of the apse of St. Restitut, Provence (490).[2] It was not so in the early Romanesque of Normandy, still less of England. Of all the Romanesque schools this was the most backward in sculpture; so inexpert that for their decoration the eleventh-century carvers had to restrict themselves in the main to the

E. S. Harmston, Lincs.

[1] See the important paper of Monsieur L. Demaison in the *Guide* of the French Society of Archæology, Reims Congress, 1911; p. 52.

[2] This capital has a *super-abacus*, or what in France is termed a *dosseret*, such as is common in Byzantine work. Archæologists, following Revoil, have long given very early dates quite incompatible with its perfection of technique to the accomplished Romanesque work of Provence; but M. Labande in a series of valuable papers in the *Guide* of the French Society of Archæology, Avignon Congress, 1910, has definitely proved that this work belongs to the second half, and usually to the last years, of the twelfth century. For an English version of the *super-abacus*, see the capitals of the west doorways of Lincoln minster, probably inserted *c.* 1150 (468).

simplest geometrical patterns—billet, zigzag, sawtooth, nail head, sunk star, and the like (719). To such clumsy hands the classical Corinthian capital, originally intended in all probability to be produced in metal and difficult to execute in stone, was an utter impossibility; where examples do occur, the probability is that the carvers were imported. Those who insisted on having Corinthian capitals produced a series of the shocking caricatures, which we may stigmatise as Corinthianesque. Rude examples, probably post-Conquest in date, occur in Anglo-Saxon churches; *e.g.*, Glentworth, Scartho, St. Peter-at-Gowts, Lincoln, Barton-on-Humber, Great Hale; all these are in Lincolnshire, and are no doubt inspired by Remigius' capitals in Lincoln minster.[1]

A. Rome: S. Maria in Trastevere

In a typical Roman capital of Corinthian or Composite type the following features are or may be present. (1) Beneath the corners of the abacus are supporting volutes of simple geometrical form, or, more often, foliated (2) Between each pair of volutes is often found an ornament, a rose as at St. Restitut, or the symmetrical leaf which goes by the name of palmette, anthemion, or honeysuckle, or more often spirals, as at S. Maria in Trastevere, the Pantheon, and St. Remi. (3) Leaf scrolls may occur on the face, as in Durham castle (491) and Broadwater (493). (4) One or more bands of acanthus occupy the lower part of the capital; or leaves of lotus or plantain may be employed, as in the Pantheon capital; these, however, are no doubt sometimes nothing but acanthus leafage unnotched and unveined; or the water leaf incurved at the tip may occur. In this foliage the notching of the leaves and the veining and ribs were all reproduced in the best ancient and mediæval

F. B. Reims: St. Remi

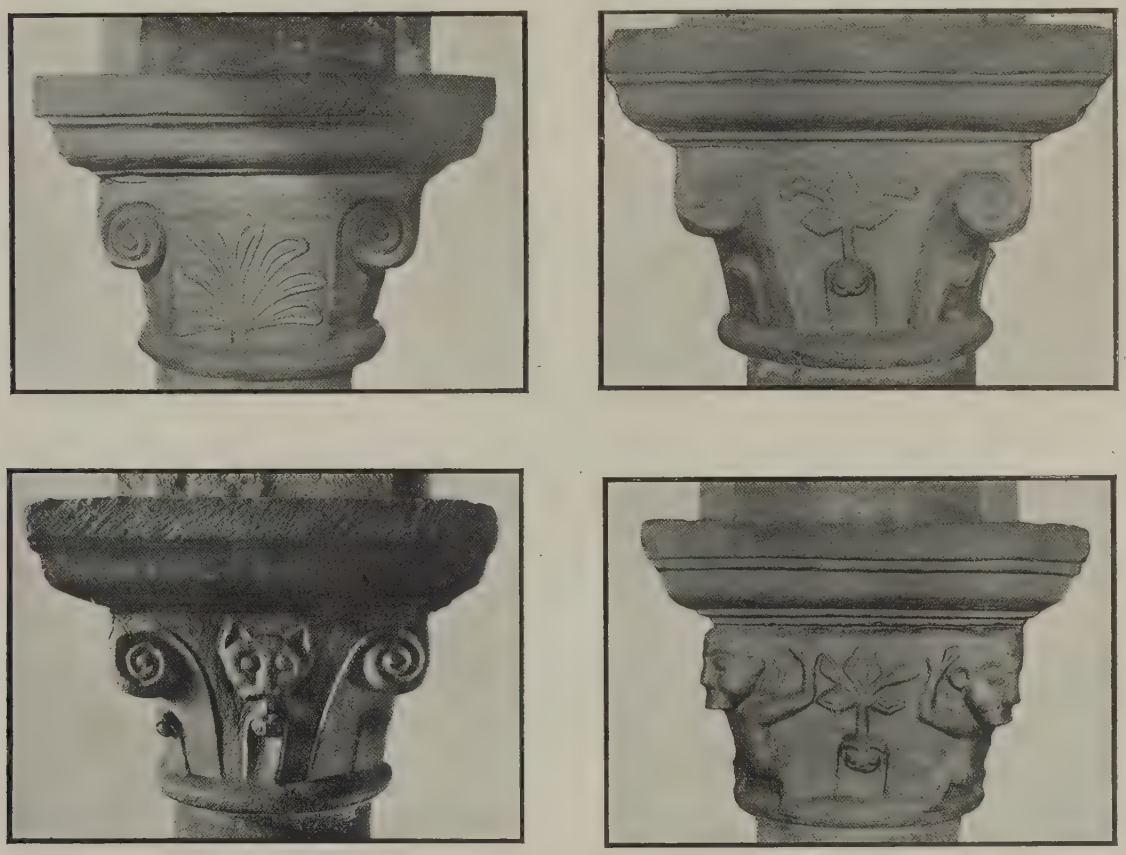
[1] See illustrations facing p. 180 of Baldwin Brown's *Arts of Early England*, vol. ii.

examples; but complex combinations of such elaboration were cut down remorselessly by the eleventh-century masons of Normandy and England. Of the whole number it often happens that only one feature is allowed to remain, the volute, and this not foliated but plain; *e.g.*, the Benedictine church of Blyth priory (498). The volute is shewn in the capitals of Lincoln minster, *c.* 1092 (498), and Durham castle (491); the triforium of Christchurch nave, *c.* 1100 (492); Harmston church, Lincolnshire, *c.* 1150 (488); and in the last quarter of the twelfth century in Compton church, Surrey (498), Canterbury choir (495), Oakham castle hall, Broadwater church, Sussex (493), Great Bedwyn, Wilts. (492), Tilney All Saints, Norfolk (492), Oxford cathedral (496), Northampton St. Peter (492), and St. Mary, Shrewsbury (498).[1] Instead of the rose, seen in the capital of St. Restitut, a rectangular block termed a *console* is seen in the capitals of Harmston and Lincoln (488, 498); this console appears in the capitals of the tower piers of

H. H. St. Restitut, Provence

[1] Very good volutes occur in one of the capitals of the mid-wall shafts of Harpswell tower, Lincolnshire, one of the latest examples of mid-wall shafts. The Caen type of capital, *e.g.*, in the Abbaye-aux-hommes and Abbaye-aux-dames, with upper volutes and lower band of acanthus, is found in early Norman castles; *e.g.*, the gateways of the keeps at Colchester and Richmond. There are good examples of it in Barton Seagrave church, Northants, in the angle-shafts of the windows and in one capital at least of the inner chancel arch.—A. H. T.

St. Nicholas, Caen.[1] The symmetrical palmette, or a variant of it, is seen in the capitals of Dore abbey (492), Broadwater (on and beneath the middle volute of the central capital), Christchurch (492), Oxford cathedral (496), and Great Bedwyn (492). A band of acanthus is seen at Dore; and single leaves at Shrewsbury (498), and Oxford cathedral (496). Plantain or simplified acanthus is shewn



R. J. G. Durham Castle Chapel

at Compton, Northampton St. Peter, Harmston, Shrewsbury, and Chester St. John's (494).

Early examples of the Corinthian capital occur in the chapel of Durham castle (491) and in the crypt of Lastingham, Yorkshire (82), but it never gained much popularity with us. In France, on the other hand, it was developed into forms of great richness and elegance; fine examples may be seen at N. Dame, Chalons-sur-

[1] Illustrated in *Gothic Architecture in England*, 421-2.

F. H. C. Tilney All Saints, Norfolk

F. H. C. Great Bedwyn, Wilts.

F. B Northampton St. Peter

G. G. B. Dore Choir, Hereford

F. B. Christchurch : Triforium of Nave

Marne, St. Remi, Reims, Notre Dame, Paris, the cathedrals of Laon, Sens, Lisieux, and elsewhere. And when a French architect was sent for in 1174 to rebuild Canterbury choir, a set of foliated capitals was executed quite up to the level of the best work in France; they found, however, few imitators in England except in the hall of Oakham castle,[1] and solitary capitals such as one in the triforium of Peterborough nave, carved perhaps by a Canterbury mason on his way to Oakham; and those of the chancel arch of Broadwater, Sussex.

Nowhere can the transition from the Corinthian to the Gothic foliated capital be better studied than in Oxford cathedral, New Shoreham,[2] Sussex, and Reigate, Surrey (498). The church at New Shoreham is built of stone from the Reigate

CAPITALS FROM CHANCEL ARCH BROADWATER CHURCH SUSSEX DRAWN BY OCTAVIUS DAVIS

quarries, and from the general character of the design it is evident the Reigate capitals were carved by the same masons as those of New Shoreham; but the former are so superior in design and execution that the masons must have finished their work at New Shoreham before they began at Reigate. Both abound in classical reminiscences. In the three Reigate capitals the foliated volute is the leading motif; in No. 2 it is employed with propriety to support the angles of the abacus; in No. 1 it is employed on the faces of the capitals as well as at the angles; in No. 3 the abacus is circular, but the capital is nevertheless

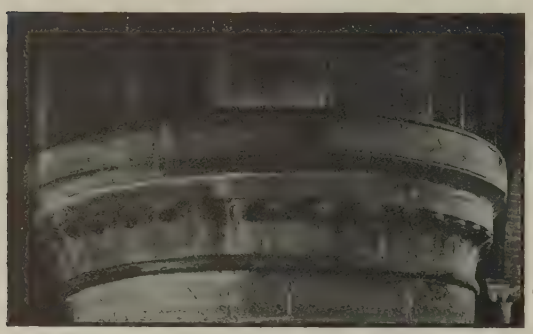
[1] Capitals not unlike those at Oakham are found in the little church of Twyford, Leicestershire, where eagles' heads take the place of volutes.—A. H. T.

[2] The New Shoreham capitals are illustrated in *Gothic Architecture in England*, 273, 421, 423.

encircled with volutes. In No. 1 the broad "celery stalk" is employed; in No. 2 there are reminiscences of palmette and acanthus; No. 3 has below a band of Gothic trefoil. The southern groups of capitals, executed when Gothic art was on the threshold, are of singular interest; their order, chronologically, may be — Canterbury choir, Chichester retro-choir, Broadwater, New Shoreham, Reigate; they commence at Canterbury in 1175, and may well have been all executed by *c.* 1200.

CUBICAL CAPITALS

Far easier to execute was the cubical or cushion capital, formed by the penetration of a cube and a sphere. This is very common in Scandinavia, Lombardy, Normandy, Germany, Anjou, and Saintogne, and in Byzantine work. It does not follow that the school of any one of these regions derived it from another. It is merely the most direct and straightforward way of establishing an accord between a square abacus and the circular column or shaft on which it was frequently placed. It is simply a square block with as much of the square left as will bring it into harmony with the square abacus above, and as much of the circular form introduced as will bring it into harmony with the circular column or shaft below. Being simple and effective, it remained long in use; in Peterborough cathedral cubical capitals were employed in the choir as early as 1117 or 1118 (778); and they were persisted in to the west end of the nave as late as 1173-1193; so also at Ely (462).

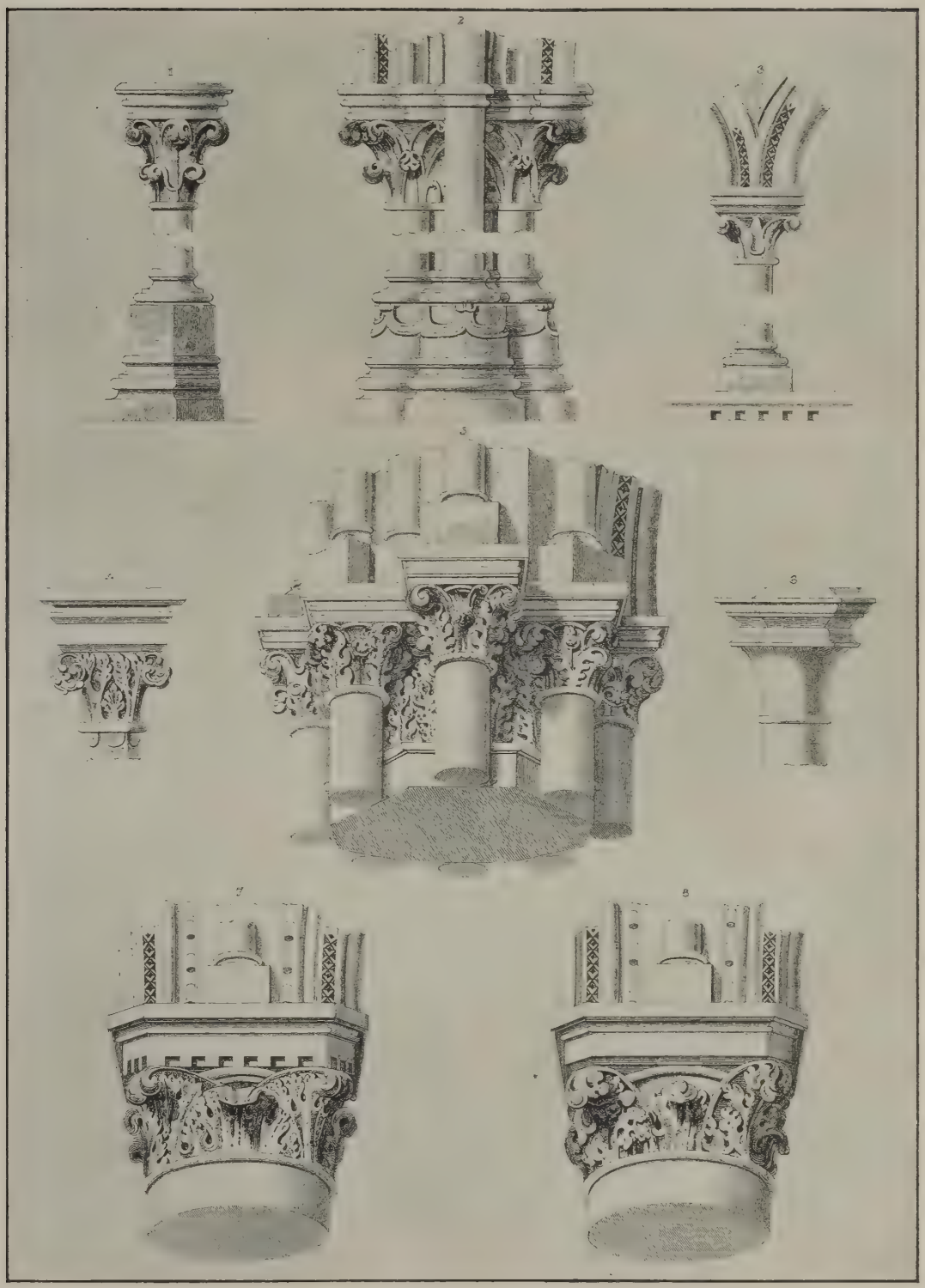


F. H. C. Chester St. John

Often, no doubt, the plain faces of this capital received painted ornament, as in Ely transept, and occasionally the painted ornament was afterwards carved. The crypt of Canterbury cathedral and the Chapel of the Pyx at Westminster shew the process of carving the faces of the capitals only partly completed. At Romsey and Rochester numerous capitals have had ornament added in this fashion; and in Hereford presbytery nearly all the capitals and arches have carving added some fifty years after they were put up (744).

SCALLOPED CAPITALS

Another obvious method of ornamenting the plain cubical capital was to subdivide it; in this way the so-called *scalloped* capital is obtained. At first the scallops were few, as at South Stoke (548); but by the middle of the century



J. B.

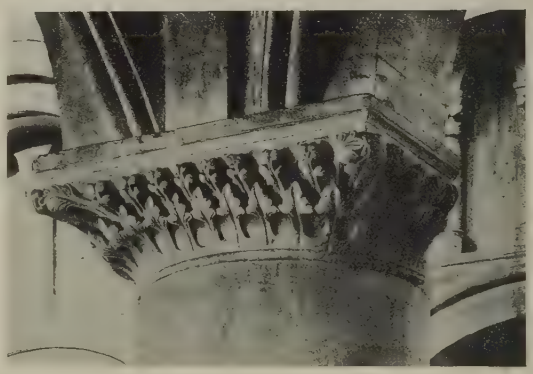
Canterbury Cathedral

1, 2, 3, South-east Transept ; 4, 5, 7, 8, Choir ; 6, Nave.

1

2

3



4

5

6

W. F.

Oxford Cathedral

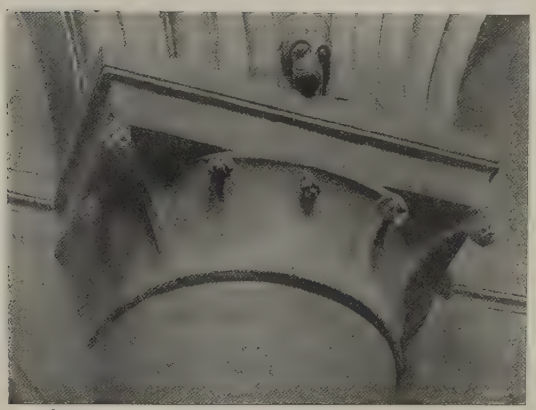
1. Choir
2. North Transept
3. North Transept
4. Nave
5. Nave
6. Nave

1

2

3

4



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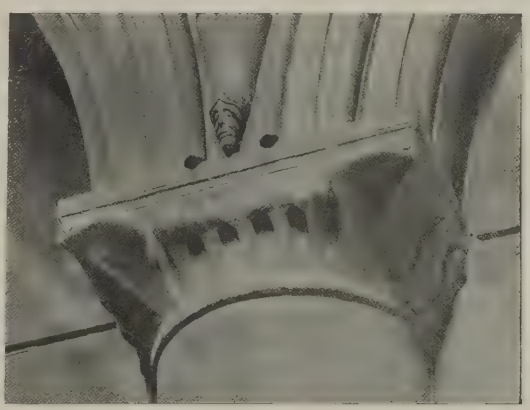
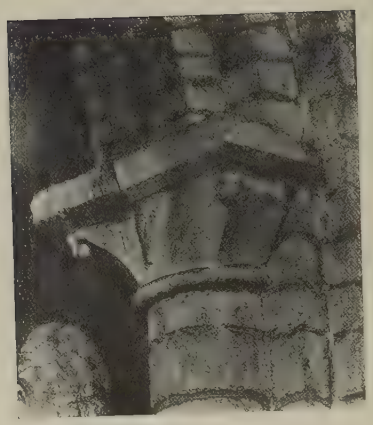


6

W. F.

Oxford Cathedral

1, 2, 3, 4, 5, Choir; 6, North Transept



H. E. I. Blyth, Notts

S. S. Lincoln : West Front

G. W. S. Compton, Surrey

F. H. C. St. Mary, Shrewsbury

F. B.

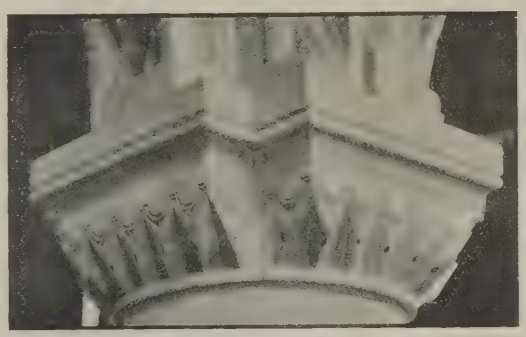
F. B.

F. B.

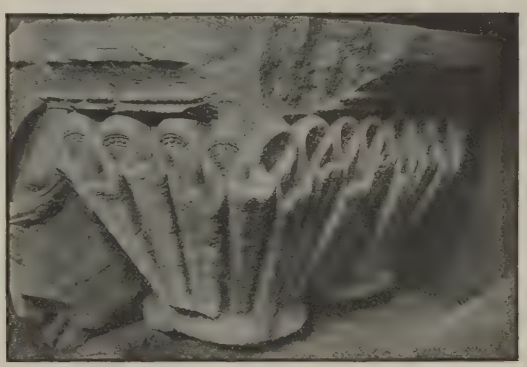
Reigate, Surrey

the whole capital was frequently divided up into a series of tiny cones; this Mr Sharpe styled the *coniferous* capital. Advanced types of the scalloped capital are particularly common in the early Cistercian churches, *e.g.*, Fountains, Buildwas, and Kirkstall; unusually elaborate examples are those of Steyning church, Sussex. In richer examples the interspaces of the cones are themselves often ornamented by inverted cones, flutings, beadings, and the like. Examples are illustrated from Whaplode, Lincolnshire (501), Walsoken, Norfolk, and Malmesbury, Wilts. (499), New Shoreham nave and crossing (500), the west doorways of Lincoln minster (468), and Bridlington Priory church (499); in late twelfth-century work beading is particularly frequent.[1]

G. G. B. Malmesbury Nave



G. G. B. Walsoken, Norfolk



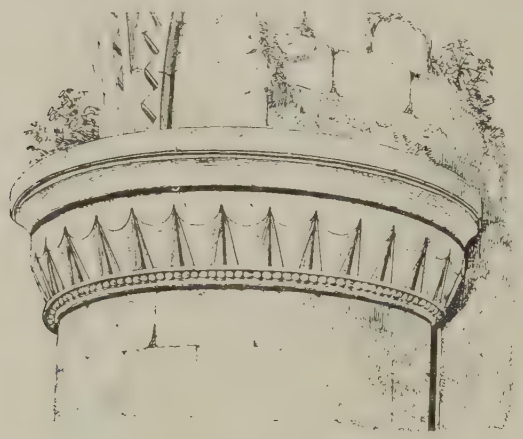
F. H. C. Bridlington, Yorks.

In most cases the scalloped capital was obtained, as suggested above, by subdivision of the cubical capital; but examples of it occur as early as the cubical capital itself, and may therefore have had an early and independent origin; *e.g.*, in Lessay and St. George's de Boscherville, Normandy, both of the eleventh century, in the Anglo-Saxon towers of Branston and Bracebridge, Lincolnshire, which can be but little later than the Conquest in date, and in Norwich cathedral, *c.* 1096.

A late development of the scalloped capitals is seen in the West of England school of early Gothic. In this capital, which we have termed the *pollarded willow* capital, the cones are *incurved*. It is exceedingly abundant in St. David's cathedral, which was not commenced till 1180; it appears in the west bays of Worcester nave, *c.* 1170;

[1] Other examples are shewn from Fountains narthex (63) and Calne (239).

and in Dore choir, *c.* 1180; by far the richest example is to be seen in the east window of Pershore chancel, *c.* 1210; most of the examples appear to range from *c.* 1180 to *c.* 1200. Though most of the examples are confined to the West of England, yet the capital occurs sporadically elsewhere; *e.g.*, at St. Margaret at Cliffe, near Dover. By a pretty fancy the incurved cones are sometimes made to bud and blossom like the horns of a cornucopia; charming examples of this treatment occur in the naves of St. David's (503) and Wells. It is shewn in its simplest form at Dore St. David's (503), and St. Mary's, Shrewsbury, on the left (504). The cones are perforated at Slimbridge (504) and Old Sodbury, Gloucester (503), Compton Bassett and Great Bedwyn, Wilts. (504), where the hollowed cones are filled with acanthus leafage. At Hilmarton,



E. S. New Shoreham: the Nave

E. S. New Shoreham: the Crossing

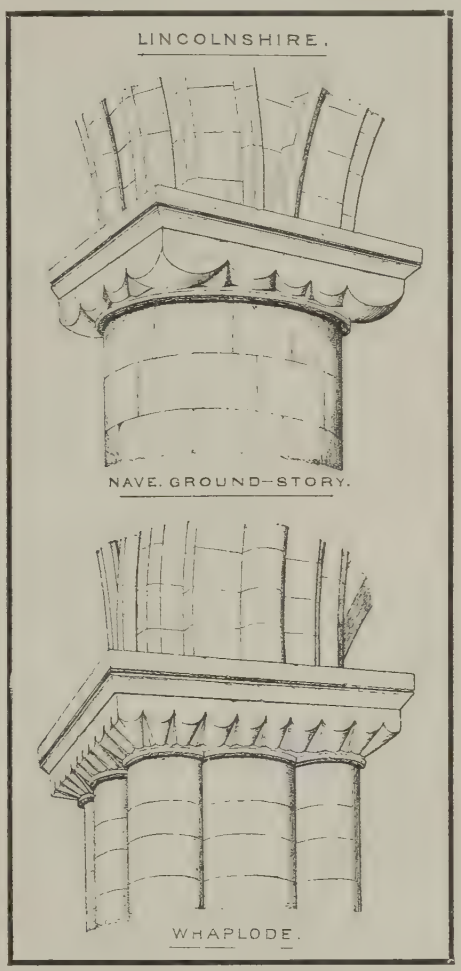
Wilts., each hollowed cone contains a spiral (504); the example from Compton Bassett is a blend of the scalloped and the incurved cone capital (504). This interesting set of capitals seems never to have attracted attention.[1]

CAPITALS WITH INTERLACINGS

Interlacings are a very primitive motif in ornament. There are few races but have at some time or other invented basket-work and fishing-nets; and decorative

[1] Other examples of the incurved cone with well developed tubular scalloping are at Shepton Mallet, Somerset, Sherston, Wilts., and Beverstone, Gloucestershire. The caps of the archway into the north choir aisle at Lichfield shew it very cleverly. Probably some hundreds of examples could be found in the western counties, north of Exeter. The small caps of the south doorway at Henbury, Gloucestershire, shew it well on a small scale.—A. H. T.

patterns which had found their way into these would soon be reproduced in pottery, woodwork, and elsewhere. A rich store of interlacing patterns occurs in the mosaic pavements which were laid down in every country which the Romans had reached. They occur also profusely in Byzantine, Celtic, Anglo-Saxon, and Scandinavian art. A considerable number of examples may be found carved in stone on Romanesque capitals of the twelfth, eleventh, and earlier centuries; the later ones, *e.g.*, in Northampton St. Peter (492) and Oxford cathedral (497), being distinguishable by their superior technique. Sometimes human forms and beasts are interlaced; as in the doorways of Kilpeck (703) and Shobdon, Herefordshire, the west doorways of Lincoln minster (468), and at Elne and Moissac, France. In the foliated capitals of early Gothic the leafage often retains the interlacing motif, as in many exquisite capitals in the nave of Wells. A simple example is illustrated from the triforium of Selby nave (505).



E. S.

CAPITALS WITH FIGURE SCULPTURE

Owing to the backwardness of our Romanesque sculptors, figure sculpture on capitals is rare. Some of the early attempts, *e.g.*, in the crypt of the Abbaye-aux-Dames at Caen and Durham castle chapel (491), are quite ludicrous. Very elaborate examples, recarved recently, may be seen in the great Cluniac church of Vézelay.[1] Two fine examples in Southwell cathedral, *c.* 1120, now blocked by the organ case, represent Scriptural scenes, such as the Entry into Jerusalem, and the Last Supper. A remarkable capital, probably French, is seen on the right at Broadwater, Sussex (493), *c.* 1190. Singularly beautiful heads of a king, queen, and archbishop occur in the north porch of Bridlington Priory church, *c.* 1260.

There was a curious furore for the use of the human head and sometimes

[1] On *chapiteaux historiés*, see R. de Lasteyrie's *Architecture romane*, 627-632.

the bust in the Midlands, in the thirteenth and still more in the fourteenth century. It is seen in the Warwickshire fonts at Wootton Wawen, Lapworth,[1] Snitterfield, Aston-Cantlow, and Weston-under-Weatherley. Remarkable capitals of this type

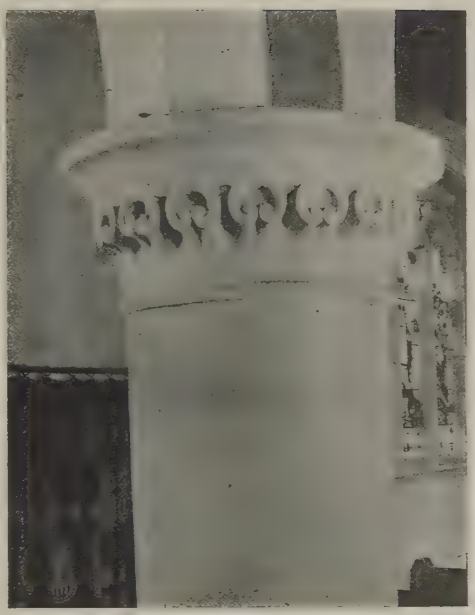
F. H. C. Great Bedwyn, Wilts.

are illustrated from the Oxfordshire churches of Bloxham, Woodstock, and Hampton Poyle (507). Others occur at Adderbury, Oxon.

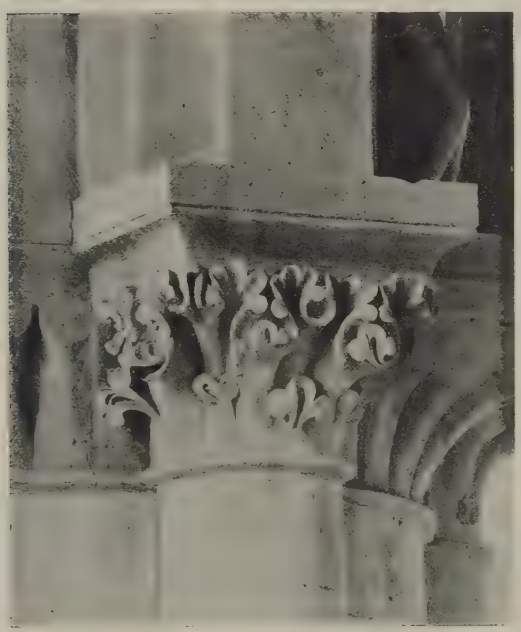
In Somerset, *e.g.*, St. Mary Magdalene, Taunton, and Chew-Stoke, and in

[1] Illustrated in the writer's *Fonts and Font Covers*, 228.

G. G. B. Dore Choir



G. F. Old Sodbury, Gloucester



G. F. St. David's Nave

F. H. C. Great Bedwyn, Wilts.

F. H. C. St. Mary, Shrewsbury

F. H. C. Compton Bassett, Wilts.

F. H. C. Hilmarton, Wilts.

G. G. B. Slimbridge, Gloucester

G. G. B. Slimbridge

F. H. C.

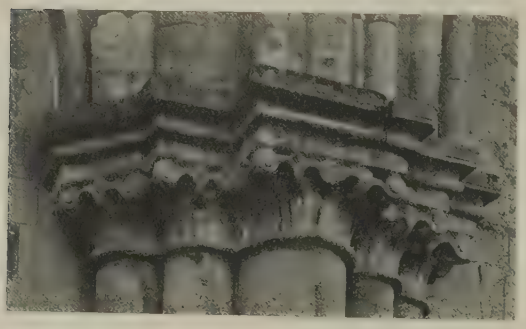
Selby: Triforium of Nave

Devon, *e.g.*, Heavitree and Alphington, angels are commonly employed in fifteenth-century capitals.[1]

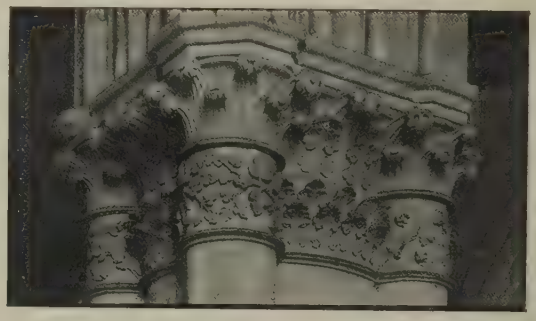
[1] Very curious examples of figured capitals are at Cottingham, Northants, where the date appears to be *c.* 1230-40. Four statuettes, each about 2 ft. long, are arranged horizontally round one capital—St. Mary Magdalene, a bishop or abbot, and two knights in armour. Another capital has roughly carved female statuettes arranged in the same way; there is something of the same kind in a capital (*c.* 1380-1400) at Kenton, Devon. At Edgcote, Northants, there is a circular capital (*c.* 1200), with very rough stiff-

FOLIATED CAPITALS

In the last quarter of the twelfth century in England, and in France earlier still, numerous interesting attempts at a naturalistic rendering of foliage occur. As they occur in both countries independently, it is probable that in both they are survivals of classical motifs, reproduced from ancient buildings which were still standing in the Roman provinces. The most important is the so-called *water leaf*; a broad, smooth leaf with a small volute which curls round inwardly instead of outwardly; in England it usually ranges from *c.* 1165 to *c.* 1190. It is very common in Cistercian churches, *e.g.*, Byland transept (506). In the parish church of St. Mary, Barton-on-Humber, all the capitals of the southern pier-arcade are composed of the water leaf. It is



F. H. C. Byland Transept



F. B. Reims Cathedral

also frequently placed as a "griffe" or "spur" on the corners of a square plinth surmounted by a circular base. For the origin of the water leaf we may perhaps look to the variants of the Roman leaf and dart motif, which is itself derived from Greece. Good examples of the water leaf may be seen in the porch of the Temple church (734), the Durham Galilee, the triforium (505) and doorway of Selby nave (435), and in Oxford cathedral (497.6).

Another motif is what looks like a *plantain* leaf; this certainly is of classical origin, for it occurs in a capital of the Tower of the Winds at Athens.[1] But it may well go further back still, and be identified with the lotus leaf of Egypt. It is common both here and in France; good examples occur in the eastern crypt of Canterbury cathedral, in Easington church, Durham, in St. Mary's, Shrewsbury (504), the central capital, and in St. John's, Chester (494).

stalk foliage on the east and north, a small head on the south, and on the west a large arm and hand, holding a head. There are some good carved capitals (fourteenth century) in Oakham church; the south-east respond of the nave has the Temptation of Eve, Annunciation, and Coronation of B. V. M.—A. H. T.

[1] Illustrated in *Gothic Architecture in England*, 425 and 428.

F. H. C. Hampton Poyle, Oxon.

Woodstock, Oxon.

F. H. C. Bloxham, Oxon.

F. H. C. Woodstock

Woodstock

Another remarkable motif is the fruit of the *arum*. This occurs in districts wide apart and between which there were no architectural relations; *e.g.*, in Wells cathedral, Broadwater, Sussex (493), Ledbury church, Herefordshire, and Carshalton church, Surrey; it is common in churches near Laon and Soissons and elsewhere; *e.g.*, the Premonstratensian church of Braisne. It is very improbable that districts so widely sundered should have independently hit upon this not very decorative motif; possibly all are derivative from some common source, in which the arum berries had an esoteric import. It may be, however, that the fruit is the grape, which the carver, never having seen a vine, represents as pointing upward instead of pendulous. This is borne out by the representation of an upright bunch of fruit in a frieze in the Lateran museum at Rome (522) and in a corbel at Exeter (865) in juxtaposition with undoubted vine leaves and grapes.

Temple Church, London

The *fern* leaf, uncurling in spring, naturally lends itself to reproduction; and may well have been employed in ancient Roman capitals as well as in such as those of the French choir of Canterbury (495), the hall of Oakham castle, and the chancel arch of Winchfield, Hampshire (430).

In France this naturalistic type of foliage was much more developed in the twelfth century than in England, no doubt because of the greater skill of the French carvers. In England it was wholly superseded towards the end of the century by conventional foliage. In France, on the other hand, though capitals of conventional foliage became common from 1180, yet the naturalistic type was not abandoned; side by side may be seen sometimes, *e.g.*, in the choir of Auxerre cathedral, foliated capitals, one designed with crockets of purely conventional leafage, the other of leaves and tendrils purely naturalistic: or as in Reims cathedral, commenced in 1211, both treatments may occur in the same capital (506).

As to this naturalistic foliage of the twelfth century it is a remarkable fact that it springs up suddenly, fully developed; there is no slow and gradual evolution from humble beginnings; a fact which is proof that it is not of indigenous origin. It can be but copyism—copyism exact and artistic—from existing examples, such as are still to be found in abundance in the relics of Roman marble sculpture in many a French provincial museum, and as are to be seen *in situ* in the Roman theatre of Arles. A charming example of Roman work is illustrated from fragments

collected in the Lateran museum at Rome from the Forum of Trajan (522). In England naturalistic foliage does not recur till after 1245, when it was re-introduced into Westminster from France.

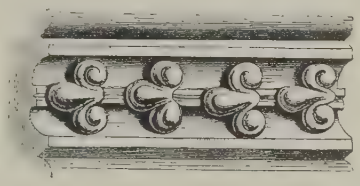
SECTION II.—GOTHIC FOLIATED CAPITALS

CONVENTIONAL FOLIAGE

Towards the end of the twelfth century, both here and abroad, all this diversification of foliated and geometrical capital disappears. In France, as has been pointed out, it was replaced by two forms: the crocket capital[1] and the capital in which the leafage is a charming reproduction of living foliage. In England the latter does not reappear till much later; the characteristic capital is one in which the

Romsey

Peterborough



Ely

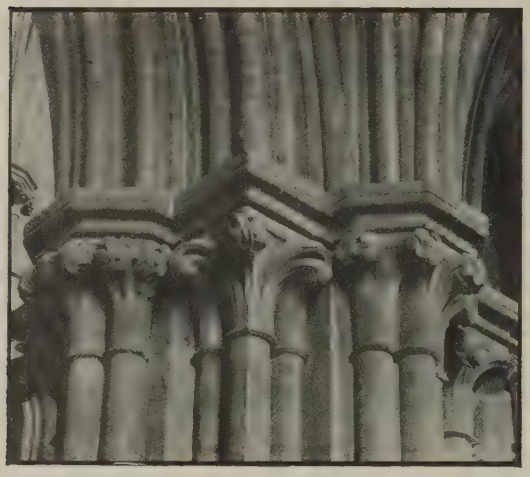
leafage is not naturalistic, but conventional, and assumes the forms of a volute or of scroll work or of both. Its special characteristic is the rendering of stalk as well as leaf, so that the foliage shall seem to be actually growing out of the upper courses of the pier. In some early capitals in the West of England, *e.g.*, at Llandaff, Wells (510), Slimbridge (504), and occasionally elsewhere, *e.g.*, at St. Mary-le-Wigford, Lincoln (521), the capital is nearly all stalk; as a rule, however, increasingly in later work, the rôle of the stalk sinks more and more into insignificance. The stalks may rise vertically, or may intersect, or may be, as it were, "blown round" the bell of the capital, *e.g.*, at Kelmscott, Oxon. (510). Usually they are slender; but a stalk broadening greatly downwards, to which the term "*celery-stalk*" may be applied, is very common in France, and not unknown in England, *e.g.*, at Reigate (498).

Two distinct sets of capitals with conventional stalked foliage are to be seen in

[1] An early example is seen in the south transept of Soissons cathedral, *c.* 1180.

F. H. C. Great Bedwyn, Wilts.

F. H. C. Kelmscott, Oxon.



G. W. S Wells Choir

F. H. C. Wells Transept

D. & P. Wells : East Aisle of Transept

F. B. Pershore, Worcester

our early Gothic; those in which the characteristic is the foliated volute, and those in which it is a scroll of three, five, or seven leaves. These two characteristics are of wholly distinct provenance. The foliated volute is nothing but the ancient Corinthian capital with all its features omitted save one, the volute.[1] Such capitals, composed entirely of foliated volutes, occur well before the close of the twelfth century; nowhere are finer examples seen than in the sister churches of Reigate (498) and New Shoreham;[2] quite as early are the volute capitals in the Chapter house of the Cistercian abbey of Jervaulx (511). Of French inspiration are the admirable capitals of Chichester retro-choir (484); here also the palmette occurs: it will be noticed that the depth of the capital is proportionate to the diameter of the shaft or column; a peculiarity which is reproduced a few years later in Lincoln choir. In the

F. B. Jervaulx Chapter House

W. D. Salisbury: Doorway of Chapter House

design of the crocket capital Lincoln[3] offers very numerous examples; in the early work, 1192–*c.* 1200, it is somewhat rare; from that date onwards it is the predominant type; the first set of these capitals, mainly of the time of Hugh of Wells (1209-1235), being characterised by refined treatment of the foliage of the volutes, especially in the Chapter house and the south arcade of the nave; the second

[1] So also Comte Robert de Lasteyrie: "C'est de cette grossière simplification qui réduit l'épanelage du chapiteau corinthien aux seules volutes d'angles, qu'est né le chapiteau aux crochets."—*Architecture romane*, 615.

[2] The New Shoreham capitals are illustrated in *Gothic Architecture in England*, 273, 421, 423.

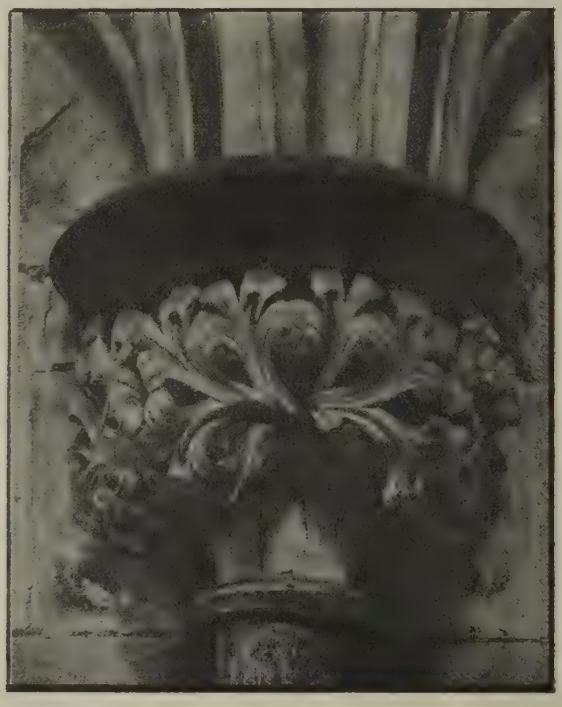
[3] The whole chronology of the work attributed to St. Hugh at Lincoln is reviewed and reconsidered in a paper by Mr Watkins and the writer, which appeared in the *Journal of the Royal Institute of British Architects* for 26th November 1910, and which was followed by a correspondence extending up to the following August.

S. S. Chapter House

S. S. Back of Choir Stalls

Lincoln Minster

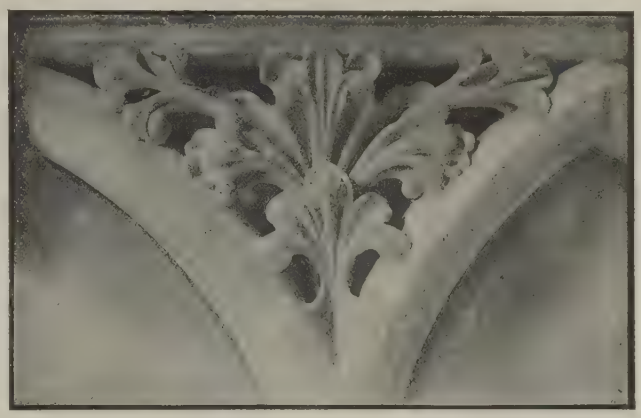
S. S. Lincoln : Lavatory



S. S. Lincoln Retro-choir

set, of the time of Bishop Grosseteste (1235-1253), *e.g.*, those at the back of the choir stalls, have much projection but are often coarse and mechanical in execution; while the third set, those of the retro-choir (*c.* 1255-1280) and of the doorways leading from the transepts into the choir, are unsurpassed here or abroad.[1]

The crocket motif is well suited for French capitals with a square abacus to whose corners it gives support, as at Broadwater (493) and Canterbury choir (495). In the south-east transept of Canterbury, however, the abacus is circular on plan, and crocket capitals are used although there is nothing for them to support. The circular planning of the abacus meant death to the crocket capital; yet before it deceased, many fine examples were produced; *e.g.*, in the choir of the Temple church, London (508), Wells (510), Salisbury (511), and Lincoln minster (517).

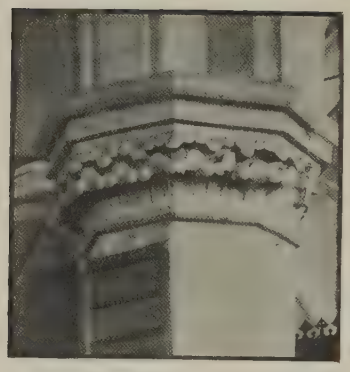


M. E. P. Wells: North Porch

Not every mason, however, was capable of capitals of such high projection as those of Lincoln minster, and examples of more sober and solid design are numerous, especially towards the middle of the thirteenth century, *e.g.*, at All Saints', Stamford (515), and West Walton (516). A perfectly proportioned capital is illustrated from the Temple church, London, consecrated in 1240. A few years later the volute or *crocket* motif culminates in heavy masses of foliage tumbling over in admired confusion at Salisbury (511), in the doorways[2] leading to Lincoln choir from the transept (524), in the corbels which support the vault of Lincoln Chapter

[1] The evolution of the foliated capital can be studied particularly well at Lincoln; there are (1) the eleventh-century capitals of Remigius in the west front, particularly in the north-west chapel (498); (2) twelfth-century capitals in the doorways of the west front (468); (3) capitals in St. Hugh's work, 1192-1200, *e.g.*, in the double arcading of the aisle walls, especially in the Dean's chapel; these are mainly scroll capitals (512); (4) early capitals of Hugh of Wells, scroll capitals, in the north arcade of the nave; (5) his later volute capitals, as above (512); (6) Bishop Grosseteste's work, generally poor, except above his grave in the end bay of the south-east transept (516); (7) the retro-choir (516) and the doorways into the choir aisles (517); (8) the eastern screens of the choir aisles, especially the "stops"; (9) purely naturalistic foliage in the Easter sepulchre (527) and the first bays of the cloister (525); (10) naturalistic foliage, but of undulatory type, in the rest of the cloister; (11) the choir screen, wholly of undulatory type (536).

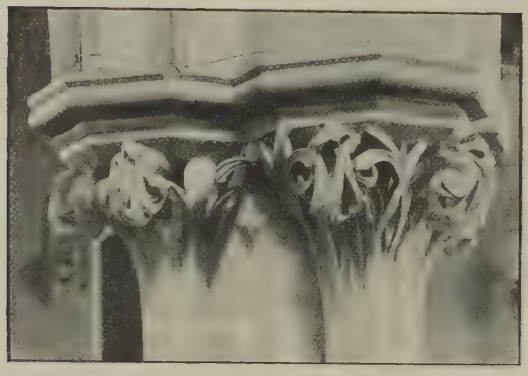
[2] The capitals of the arches leading into the choir aisles at Lincoln were entirely recarved by a man named Pink in the early eighteenth century, when the original carving was much decayed.—A. H. T.



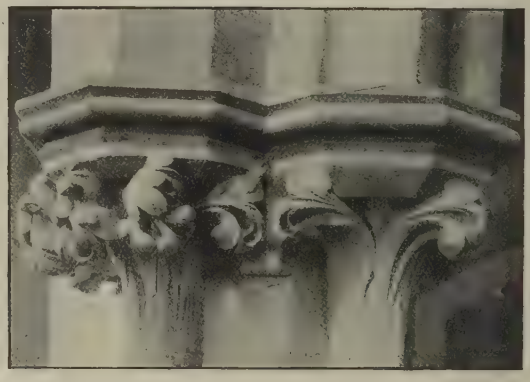
F. B. Reigate

Ely St. Mary

Dore

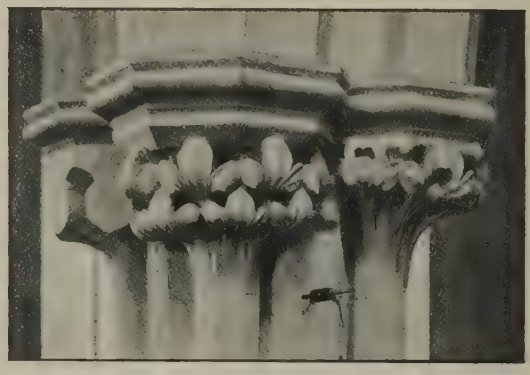


G. G. B. Slimbridge



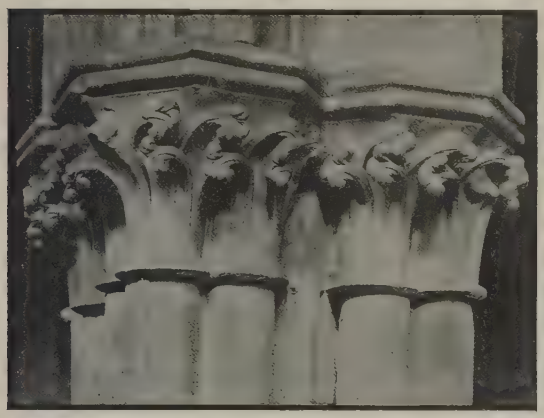
G. G. B. Slimbridge

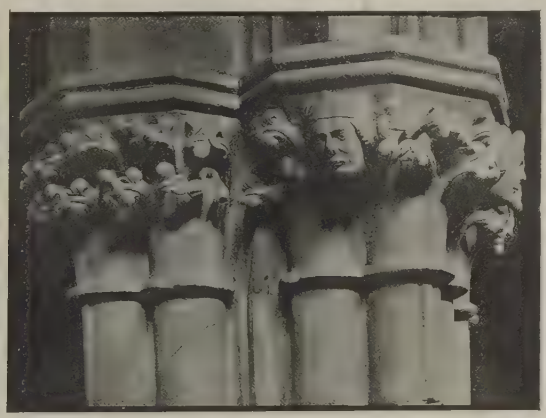
G. G. B. Slimbridge



G. G. B. Slimbridge

house[1] and the superb capitals of the central pier of Lichfield Chapter house (537). Late and very fine, often with an intermixture of birds and beasts, are the crocket capitals of the transepts of York (1230-1260) and Durham (1242-1280);



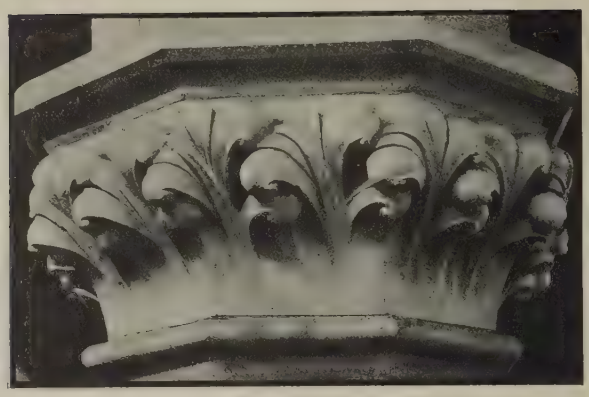


F. H. C. Shrewsbury St. Mary

F. R. T. Stamford All Saints : Chancel

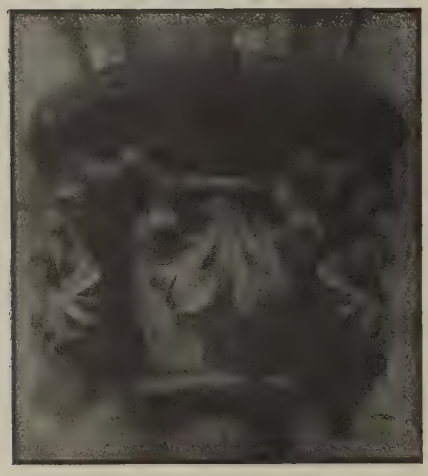
of the two examples on the right on p. 520 the lower one has knobby leafage; in the capital above the knobs are inverted.

[1] The Chapter house seems to have been designed, like that of York, for a wood roof only; from the way the corbels cut into the arcading, it is evident that they are not part of the original design. When the vault was inserted some time later, it thrust out the buttresses, which were strengthened by heavier pinnacles and flying buttresses early in the fourteenth century (148).



G. G. B.

Ivinghoe, Bucks.



S. S.

Lincoln Retro-choir

F. H. C.

West Walton, Norfolk

S. S.

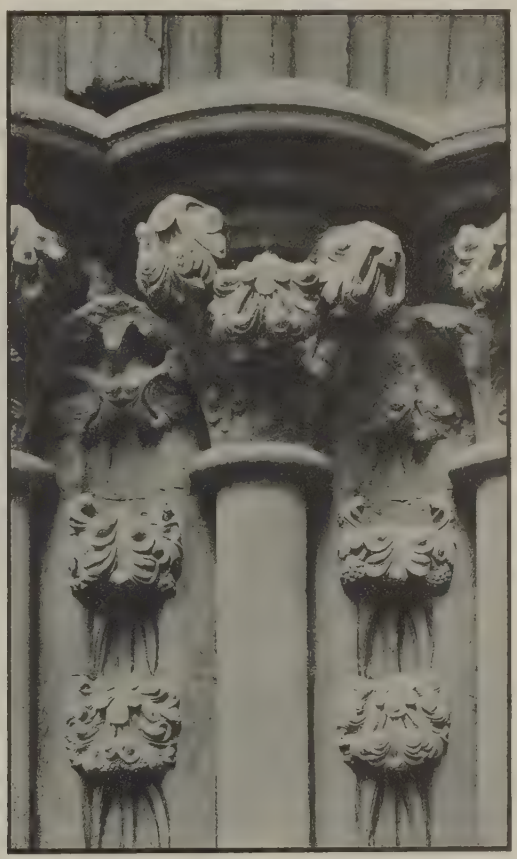
Lincoln : South-east Transept

F. H. C.

West Walton

The early school of Gothic in the West of England also employed the volute as a motif; usually the capital is elongated and rather narrow; both in the twelfth and thirteenth century capitals the necking is often omitted, with rather unfortunate effect, *e.g.*, at St. David's (503) and Slimbridge (514). The Western capital appears in Wells and Llandaff cathedrals, Abbey Dore, Whitchurch Canonicorum, Dorset,

S. S. Lincoln Retro-choir



S. S. Lincoln: Choir Doorway

Deerhurst and Slimbridge, Gloucestershire, and elsewhere; nowhere in England are more superb examples of the foliated capital to be seen than in the nave and south transept of Wells (510).

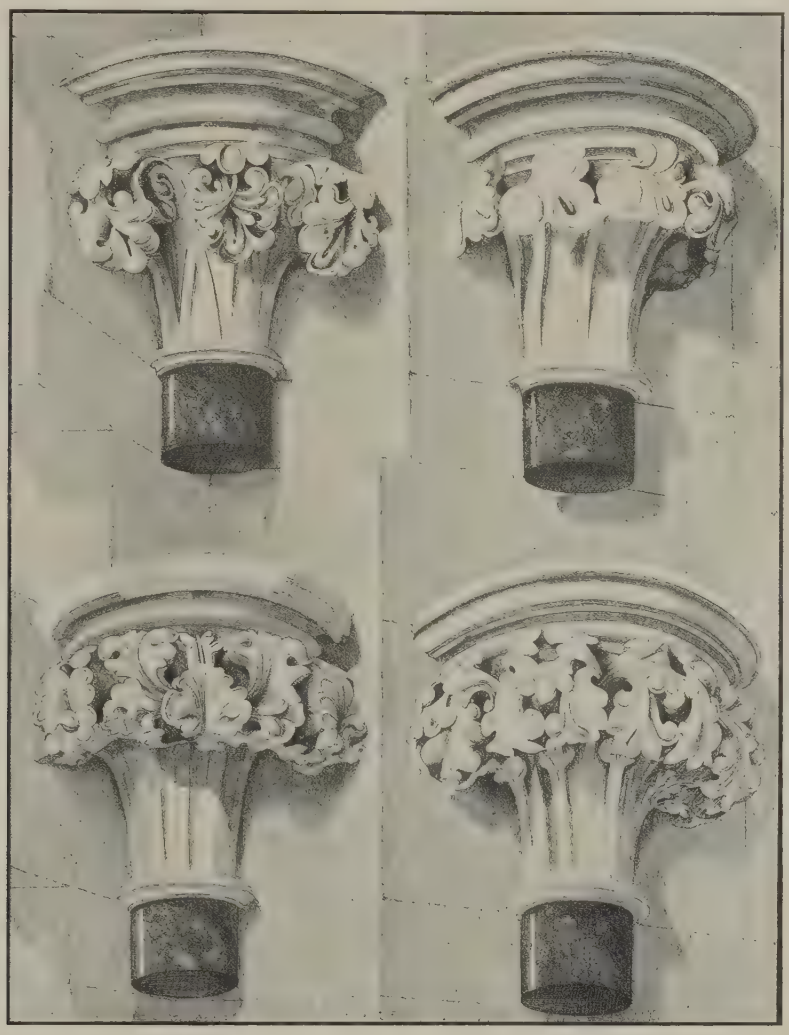
But there is another early Gothic leaf capital totally distinct in character. It is well shewn in the eastern aisle of Wells transept (510), the retro-choir of Abbey Dore (514), the parish churches at Reigate and Ely (514), and the lower part of the capital from St. David's (503), all of which probably belong to the closing years of

the twelfth century. In none of these is there the remotest reminiscence of the Corinthian capital. The leafage, which is stalked and conventional, is composed of trefoils or cinquefoils, of simple character at Oxford (496.4), Great Bedwyn (510),

F. H. C. Bridlington Porch

Pershore (510), St. David's (503), Dore (514), Ely, Reigate, of more intricate design in the Lincoln lavatory (512). Such leafage appears to be a modification and development of the symmetrical leaf scrolls which are seen so frequently in Norman work (699), and which in turn are but survivals of others which appear

both in Greek and Roman capitals, friezes, mosaics, and the like; *e.g.*, in the capitals of the Choragic monument of Lysicrates at Athens, and S. Maria in Trastevere, Rome (489). In our early Gothic the leaf scroll is used with great



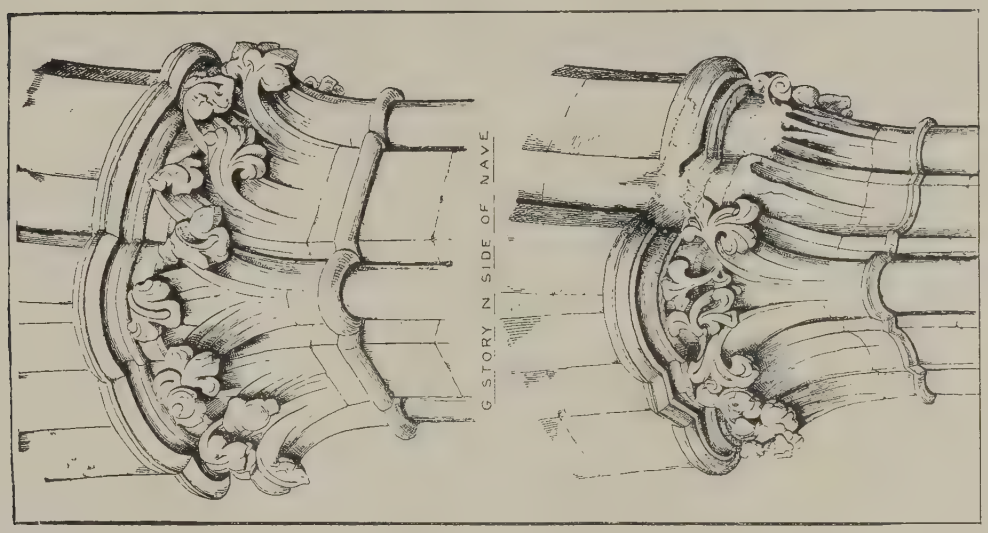
R. B. Durham: Chapel of Nine Altars

profusion in the spandrels of arches, as stops to dripstones and hoodmolds, etc.; examples are illustrated from Romsey, Peterborough, Ely (509), and Wells (513). Often the scroll motif is combined with the volute, as at All Saints', Stamford, the Temple church (508), and the capitals in the porch of Bridlington (523).

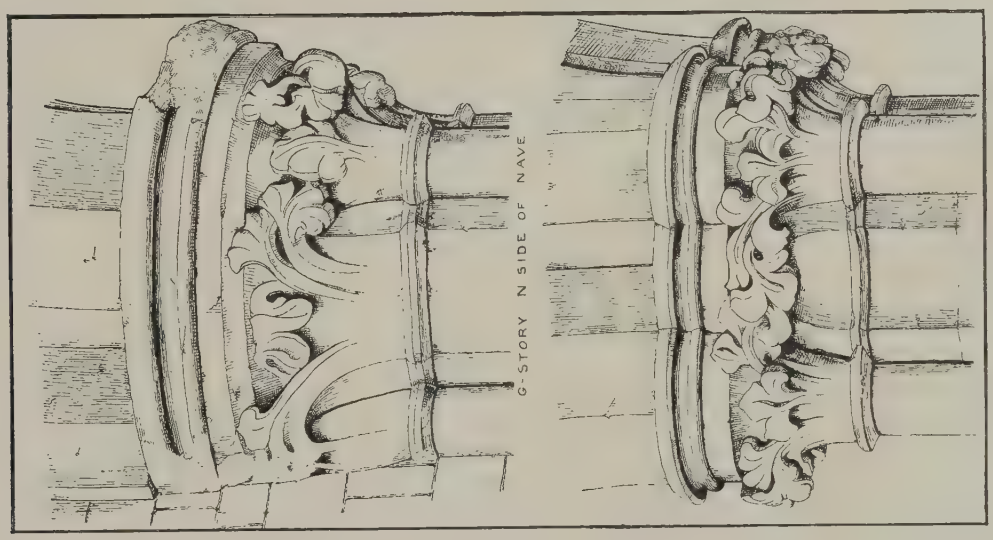
Occasionally, however, the scroll motif alone appears; *e.g.*, at Slimbridge (514), St. Mary, Shrewsbury (515), Ivinghoe, Bucks. (516), Pershore (510), Moulton (472), Weston (472), and Waddington (521), Lincolnshire, and Eaton Bray, Bedford

R. B. Durham: Chapel of Nine Altars

(475). As compared with the volute capitals, the scrolls have considerably less projection; at Moulton, Weston, Pershore, and Eaton Bray there is but little undercutting. A rich example of scroll work is illustrated from the south-east transept of Lincoln, which was probably remodelled by Bishop Grosseteste (516).



E. S. St. Mary-le-Wigford : Lincoln



E. S. Waddington : Lincs.

Fine scroll capitals are seen in the eastern transept of Durham, remarkable for deep undercutting as well as for originality of design (519, 520). At Wells the scroll capital, equally with the crocket capital, reaches the highest levels of design and execution.

CAPITALS WITH NATURALISTIC FOLIAGE

In the conventional leafage of the first half of the thirteenth century the English foliated capital is seen at its highest perfection; it was the offspring of the human brain as well as of the human hand. It gave way to work which exhibited extraordinary technical mastery of craftsmanship in the realistic reproduction of leafage,

Rome: Lateran Museum

but whose inspiration came not from the craftsman, but from Nature, which designed the leaf, the flower, and the fruit. A lovely wreath of rose leaves and stems is to be seen on one of the bosses of the high vault of Westminster choir, 1260-1272; earlier examples of realistic treatment occur in the arcading of an eastern chapel and in the diaper of the Chapter house.[1] These Westminster examples, due in all probability to imported French carvers, may have suggested a similar treatment to their English brethren. Be that as it may, the English work, when once it started, went on its way independently; and the fully developed naturalistic carvings of England are in no ways copies of French work, the best of which indeed they hardly equal in design.

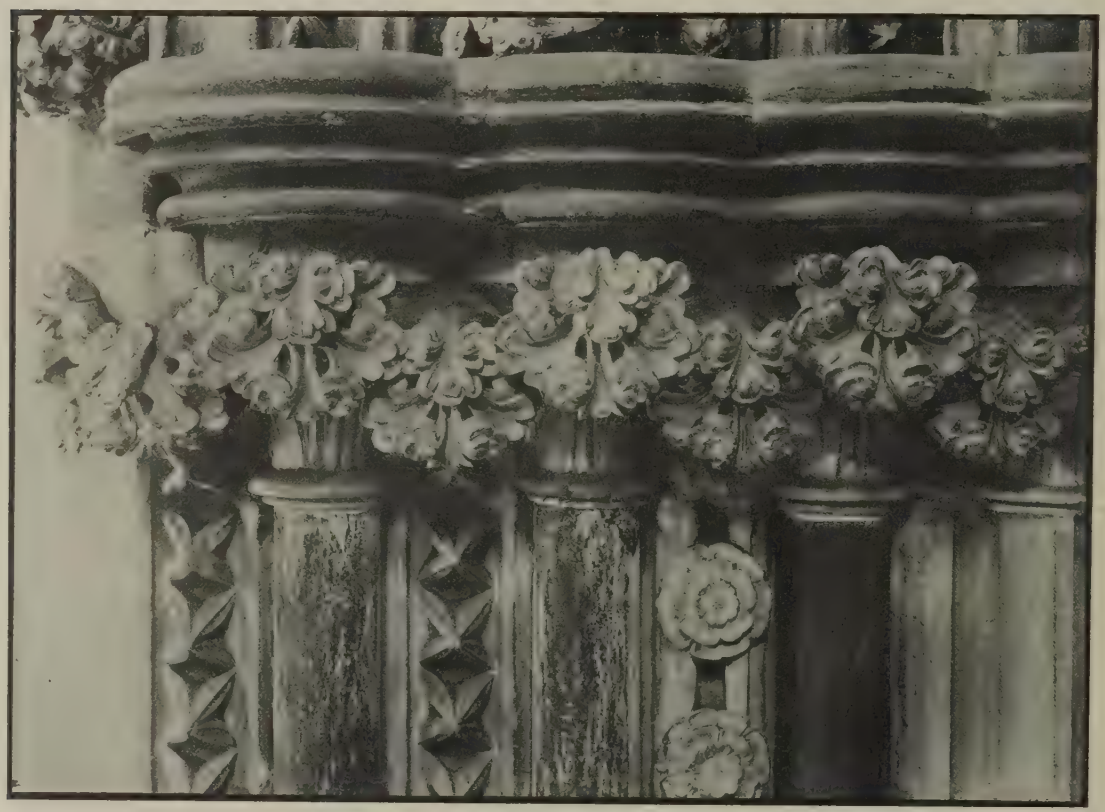
Of purely English inspiration perhaps the earliest examples are to be seen on the monument of Bishop Bridport (*ob.* 1262) in Salisbury cathedral. Early and delightful examples appear in the Bridlington porch (523), Lichfield nave, and the

[1] This diaper is illustrated in *John O'Gaunt Sketch Book*, i. 72.

F. B. Shrine of St. Thomas of Hereford

F. H. C. Bridlington Porch

Lincoln retro-choir, in which the conventional foliage opens forth into the form of a lily. A great wealth of naturalistic design is seen in the capitals of Lichfield nave, many of which, however, retain conventional foliage, *c.* 1250–*c.* 1300; the Chapter house of Southwell, *c.* 1294 (451), the cloister of Lincoln minster, 1296 (525), and the Easter Sepulchre (527), the shrine pedestals of St. Thomas Cantilupe in Hereford cathedral (523) and of St. Frideswide in Oxford cathedral, both *c.* 1290–*c.* 1300, and the Chapter house of York minster, before 1307. Particularly



S. S. Lincoln: Doorway to Choir Aisle

noteworthy are the bosses and corbels of the vaults of Exeter cathedral (864), the earliest of which, those of the Lady chapel, were put up in 1301, while the nave vault was completed *c.* 1338; in the earlier bosses there is a tendency to symmetrical arrangement of the leaves, while in the later ones, and in the corbels, more and more freedom of curve is given to the stems.[1]

[1] See the illustrations in *Bosses and Corbels of Exeter Cathedral*, by E. K. Prideaux and G. R. Holt Shafto; London and Exeter, 1910. For the naturalistic capitals of York, see Browne's *York Minster*, Plates 8-11, 28, 29.

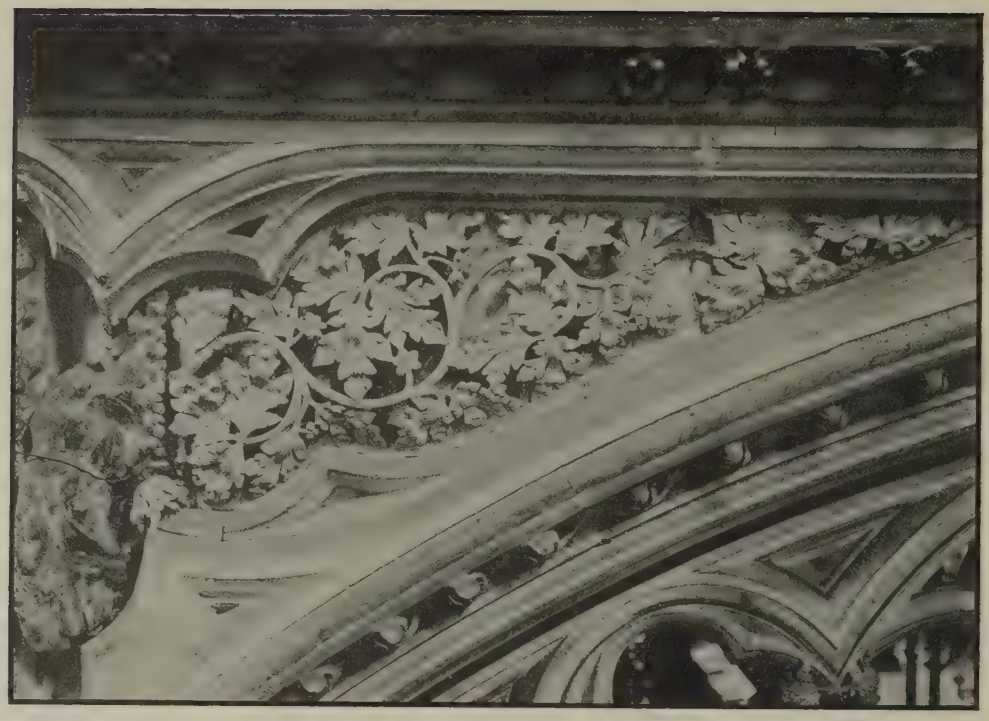
Eventually, however, the reproduction of foliage at random ceases; leaves and bloom are regarded from a decorative point of view; those which are less suitable are discarded, and a preference is given to those which afford a flow of curve and contracurve, such as the vine, the oak, and the maple; the stalk disappears, the tendril or the curving branch instead is reproduced. The reign of the earlier simple realism was short, all the chief examples falling within some twenty years; nowhere is the advance to decorative realism better seen than at Exeter; it lasted till the last days of Gothic architecture.

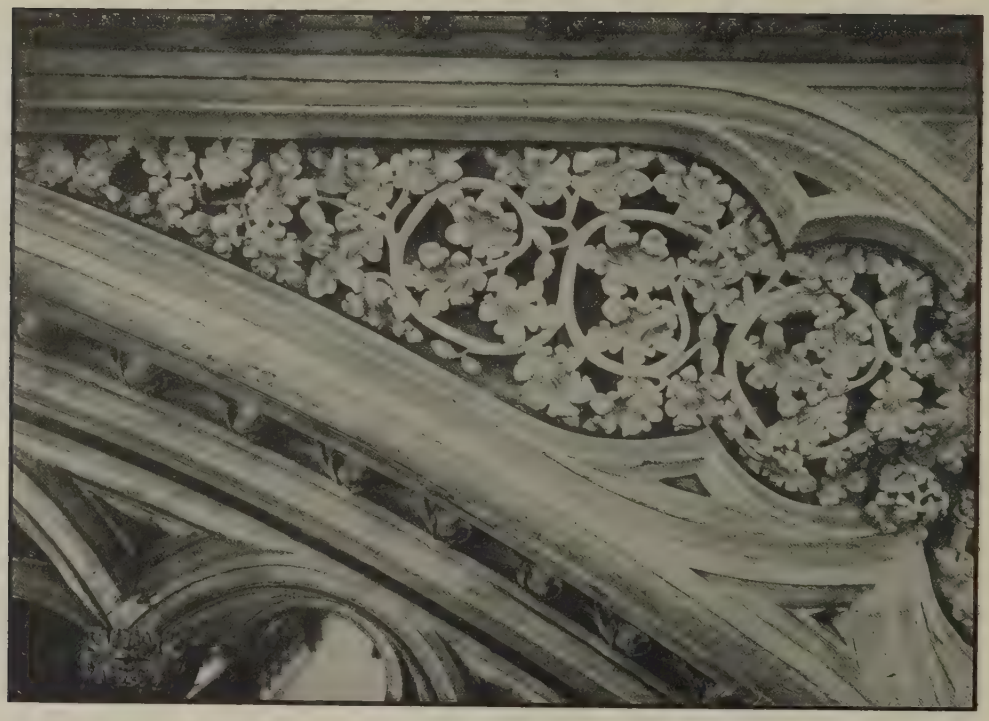
S. S. Lincoln: South end of East Cloister

Sir Daniel Morris, K.C.M.G., has kindly sent the writer the following suggestions as to the identification of flowers and fruit represented in mediæval sculpture.

The task is not an easy one; for even in the early examples of naturalistic treatment the artist gave himself a free hand; sometimes simplifying a leaf of complicated outline, more often conventionalising it to a greater or less degree; in the first case a vine leaf may look like ivy; in the second case an oak leaf may appear to be a fig leaf. It sometimes happens, however, that leafage can be identified by the accompanying fruit, *e.g.*, grapes, hawthorn berries, and acorns.

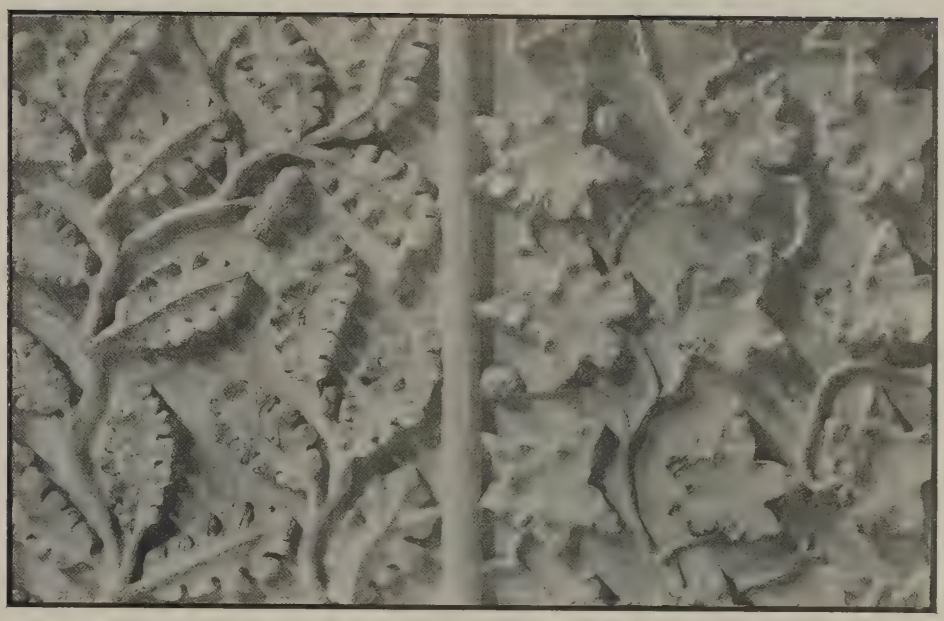
In the arcading of the Chapter house of Southwell (451) the first spandrel, on the left, contains the strawberry, in leaf and in flower; it is very clear and exceptionally true to life. The second and third spandrels have oak leaves, which in the central spandrel are slightly conventionalised, and in the right spandrel are graceful and true to life. Taking the capitals from left to right, the first probably has the vine, with a single vine leaf above;

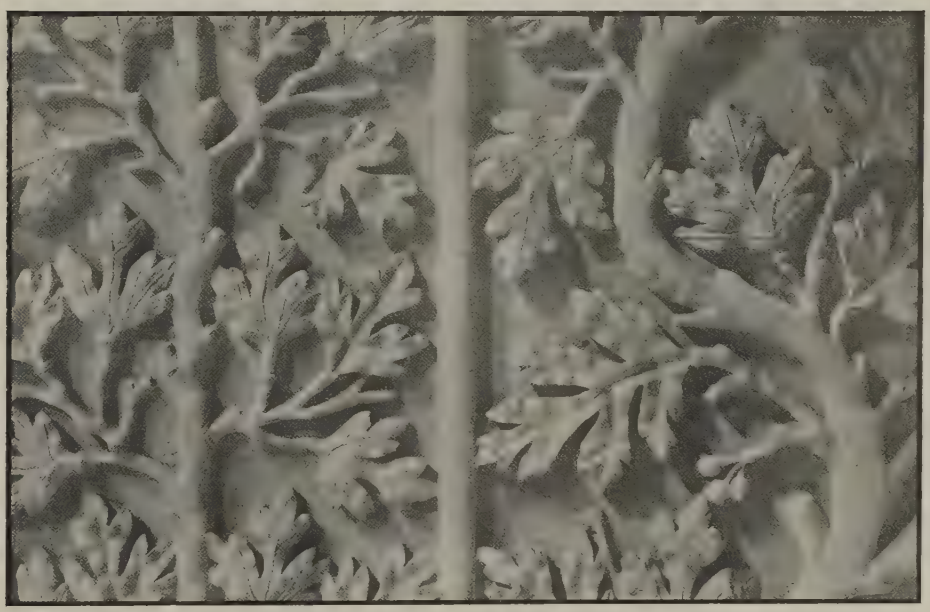




F. H. C.

Exeter Cathedral: Choir Screen





S. S. Lincoln : Easter Sepulchre

the second has vine and grapes, with vine or ivy leaf above; the third is of oak leaves with an oak leaf above.[1]

In the doorway of Lincoln choir (524) is a vertical band of roses.

In Bridlington porch (523) the leafage is conventional; on two of the capitals and in a vertical band are what may be lilies.

In the Hereford foliage (523) the vine appears in the left spandrel; in the central one oak leaves and acorns; in the right one oak leaves conventionalised.

In the frieze from the Lateran (522) the tendrils and fruit shew that the vine is represented, but highly conventionalised.

In the Exeter corbel (865) is a fine, bold representation of the common English oak with stalked acorns.

F. H. C. Beverley Minster: Aisle of Nave

In a second Exeter corbel (864) there are hazel leaves and fruit; from the boldness of the nuts it may be filberts.

In a third Exeter corbel (865) there is from the botanical point of view a fairly good representation of ivy; but it may be a simplification of the vine.

In the Easter Sepulchre at Lincoln (527), on the left, at the top of the page, are leaves and acorns of the common English oak; but the sculptor has taken the liberty to make the oak boughs undulate like the surfaces of the leafage: on the right is ivy or vine leaves. The lower panels both represent the vine (that on the right is particularly good), but the fruit is that of the hawthorn.

In the Lincoln cloister (525) is a good representation of vine leaves and grapes.

In the Exeter screen (526) is seen below a beautiful design of conventionalised oak leaves and acorns. Above is somewhat similar leafage, but the fruit is that of the hawthorn.

In the Exeter boss (862) the leafage may be acanthus. In the stop vine leaves are represented.

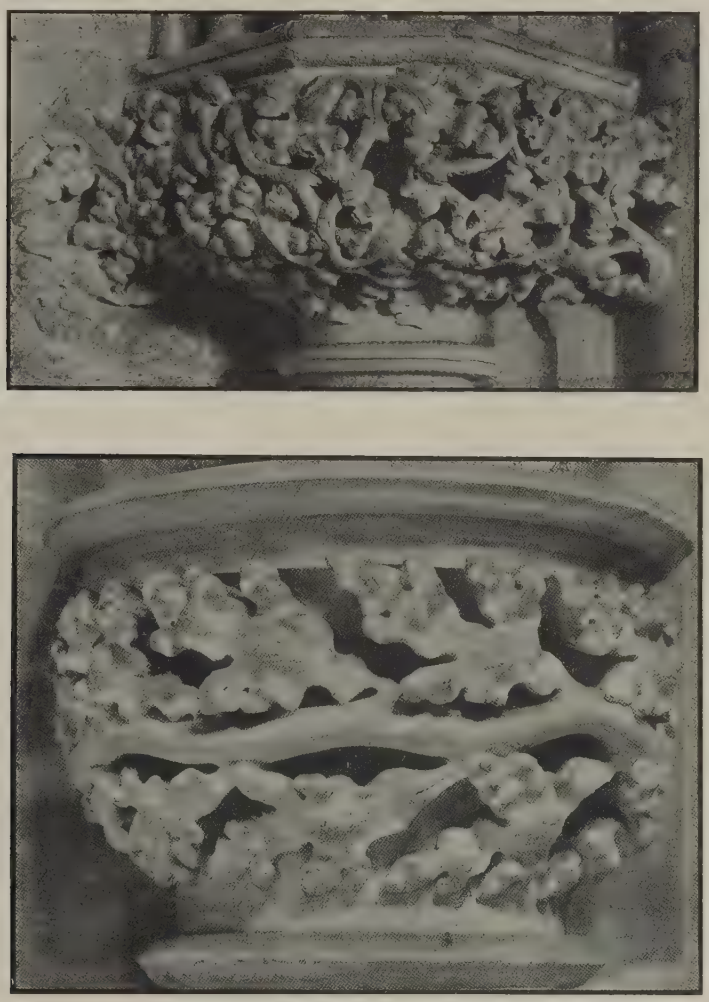
On the Percy tomb (535) the leafage looks like that of the fig, but may be acanthus; on the abacus, capital and necking is the strawberry flower or the rose.

In the Beverley reredos (310) also it is difficult to say whether fig or vine is represented.

[1] It is probable that the diversity of representations of foliage has been exaggerated: the probability is that only those leaves and fruit would be selected for representation which are symbolical. The vine and grapes are represented far more than any others because of their sacramental import. The strawberry is said to have been dedicated to the Blessed Virgin. The oak would stand for wood generally as supplying the material for the Cross.—W. T. T. D.

In another boss from the Beverley reredos (310) there appear to be conventionalised vine leaves, but the fruit is more like that of the hawthorn.

In the Carlisle capital (534) are highly conventionalised vine leaves with bunches of grapes: a very pretty design.



F. H. C. Beverley Minster: Aisle of Nave

At Patrington (534) is seen another and unusual method of conventionalising the vine leaf.

The two Lincoln designs (536) have conventionalised roses below.

At Wolborough (538) are conventionalised oak leaves; compare with the lower spandrel of the Exeter screen (526), where the acorns give a key for the identification.

At Bradninch (539) is either ivy or simplified vine leaves: and on the right conventionalised oak leaves.

At Whimple (539) is a fine representation of the thistle. About 1500 a fresh set of subjects comes in; *e.g.*, the passion flower on the Tiverton capitals.

CAPITALS WITH UNDULATORY FOLIAGE

From the very beginning of the fourteenth century the carvers began to hark back to conventional treatment of leafage: not, however, the pure conventionalism

F. H. C. Ashbourne, Derbyshire: North Transept

of the early thirteenth century, but a conventionalism based on realism. Real, growing leaves were still selected; at first they were but slightly, in the end completely, conventionalised. Two things were at the heart of the designers of the day; one was the flowing freedom of the ogee curve; the other, alternation of light and shadow; the former produced the latter. Nature itself provided them with patterns. In June the foliage had burst into full leaf; autumn came with the crumpling of the leaf; diseased foliage with its warts and excrescences is preferred to the smooth flatness of the healthy leaf; "the natural undulations of the leaf surface are greatly exaggerated, and either become violent ripples with an artificial

regularity or are turned into knoblike excrescences on the surface; the most frequent form being a leaf with a very prominent central knob or lump, from which the rest spreads out to the edges, which in their turn are either curled up or raised

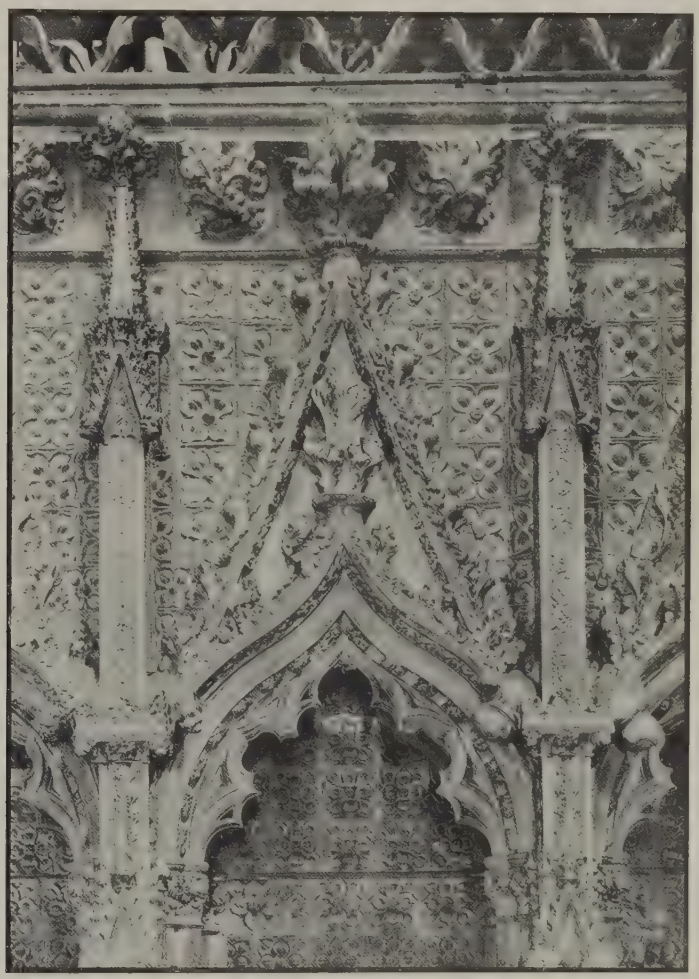
F. H. C. Exeter Sedilia

into a number of smaller lumps just before the extreme points are reached."[1] In the words of one who loved it not, "it is either blobby and knobby or wormy." Sometimes marvellous undercutting is found, as at Beverley in the leafage of Percy tomb (535) and the bosses of the reredos; more often leafage and bloom are carved

[1] Prideaux and Shafto, *Bosses and Corbels of Exeter Cathedral*, 90.

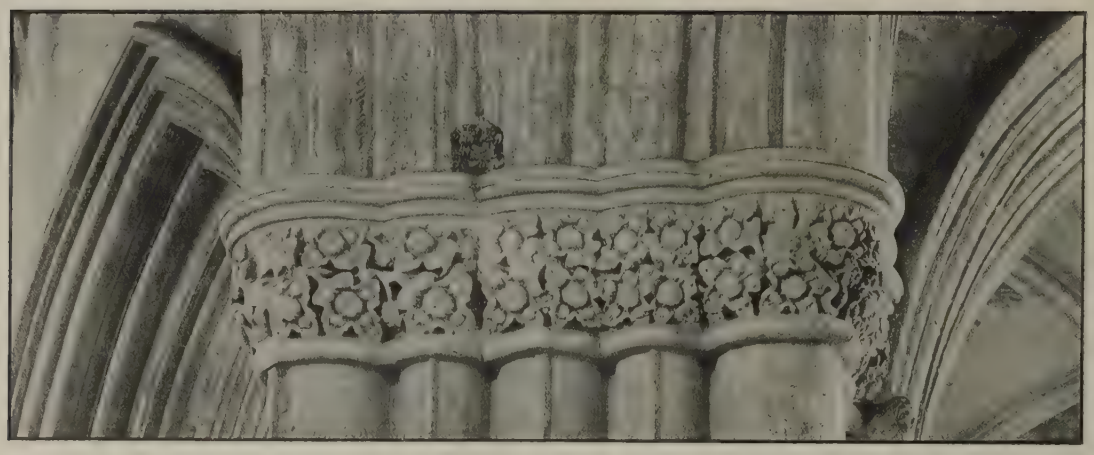
F. H C. Patrington, Yorkshire

in the solid, as in the Patrington capitals (532). Even in the conventional foliage of the south-eastern transept of Lincoln, *c.* 1237 (516), and the eastern transept of Durham, 1242-1280 (520), the knobs are seen already on the leaves; while in the



S. S. Lincoln Minster: Choir Screen

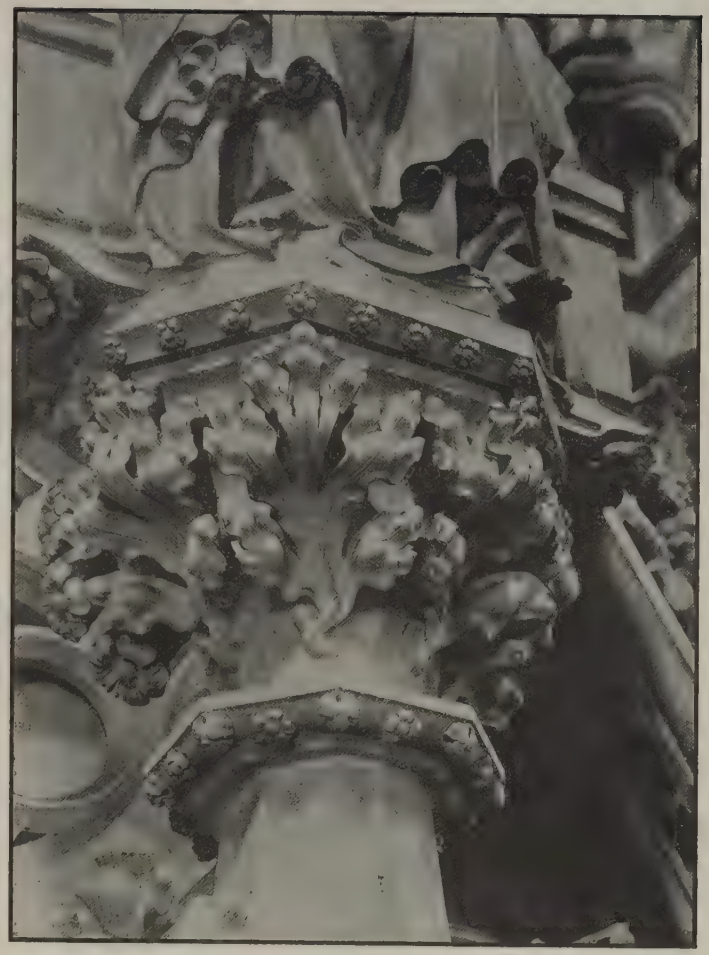
surface of the naturalistic diaper of the Easter Sepulchre of Lincoln (533) the lights and shadows alternate and the leaves begin to undulate; they were to go on undulating till the end of the Gothic period. Charming work is seen in the screen of the Lincoln lavatory, where the strongly naturalistic treatment bespeaks an early date, and where yet, in every leaf of the lower panels, is seen the newly

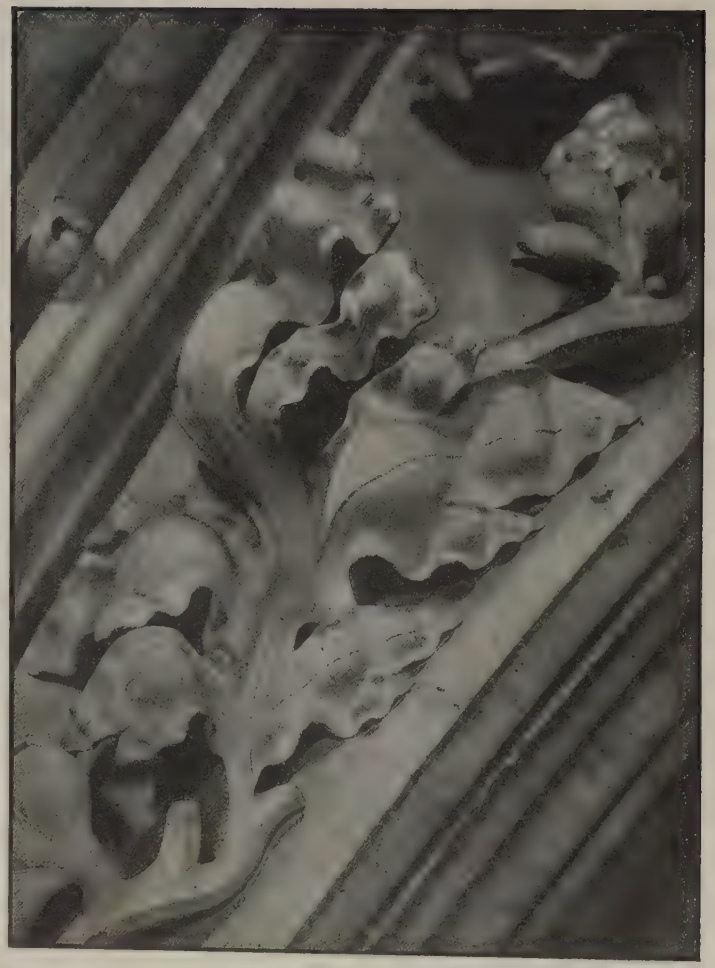


F. H. C. Patrington

F. H. C. Carlisle

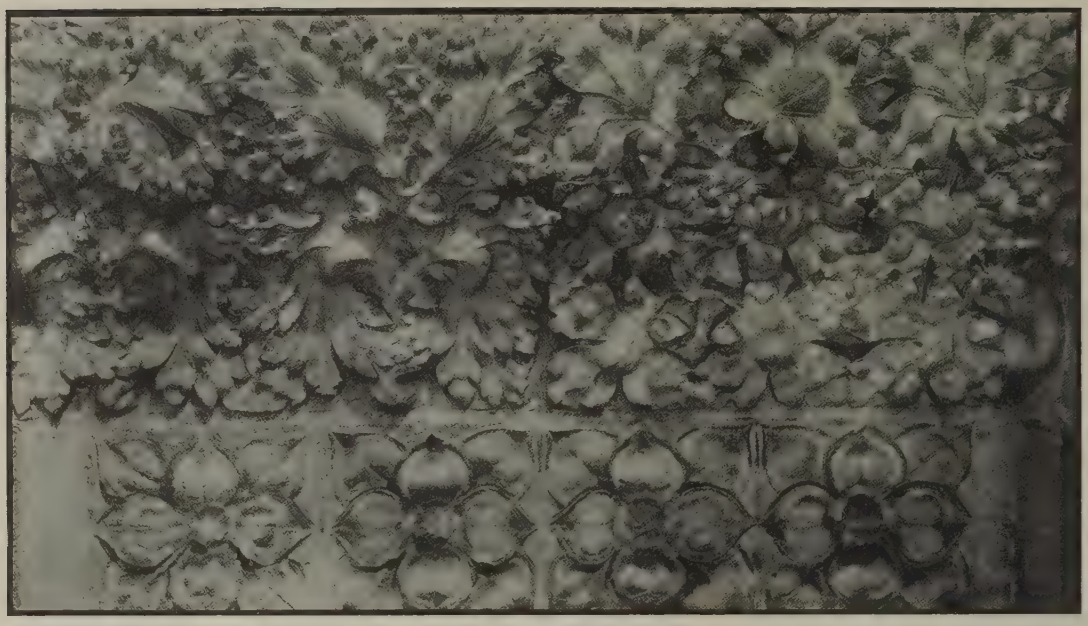
F. H. C. Carlisle Cathedral



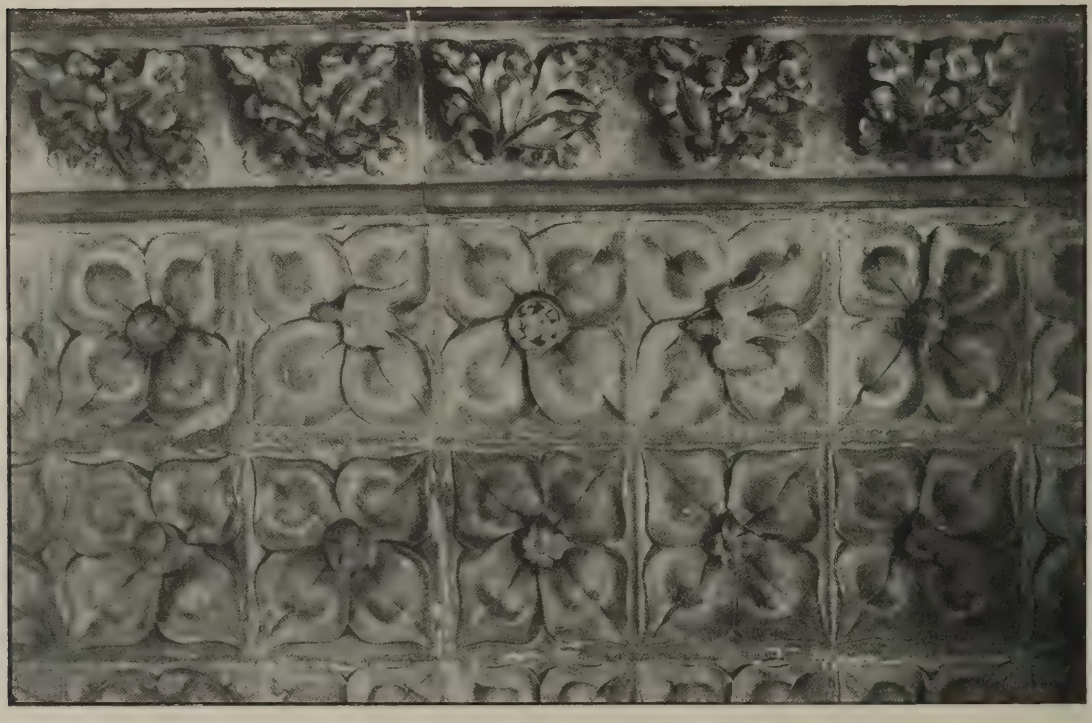


F. H. C.

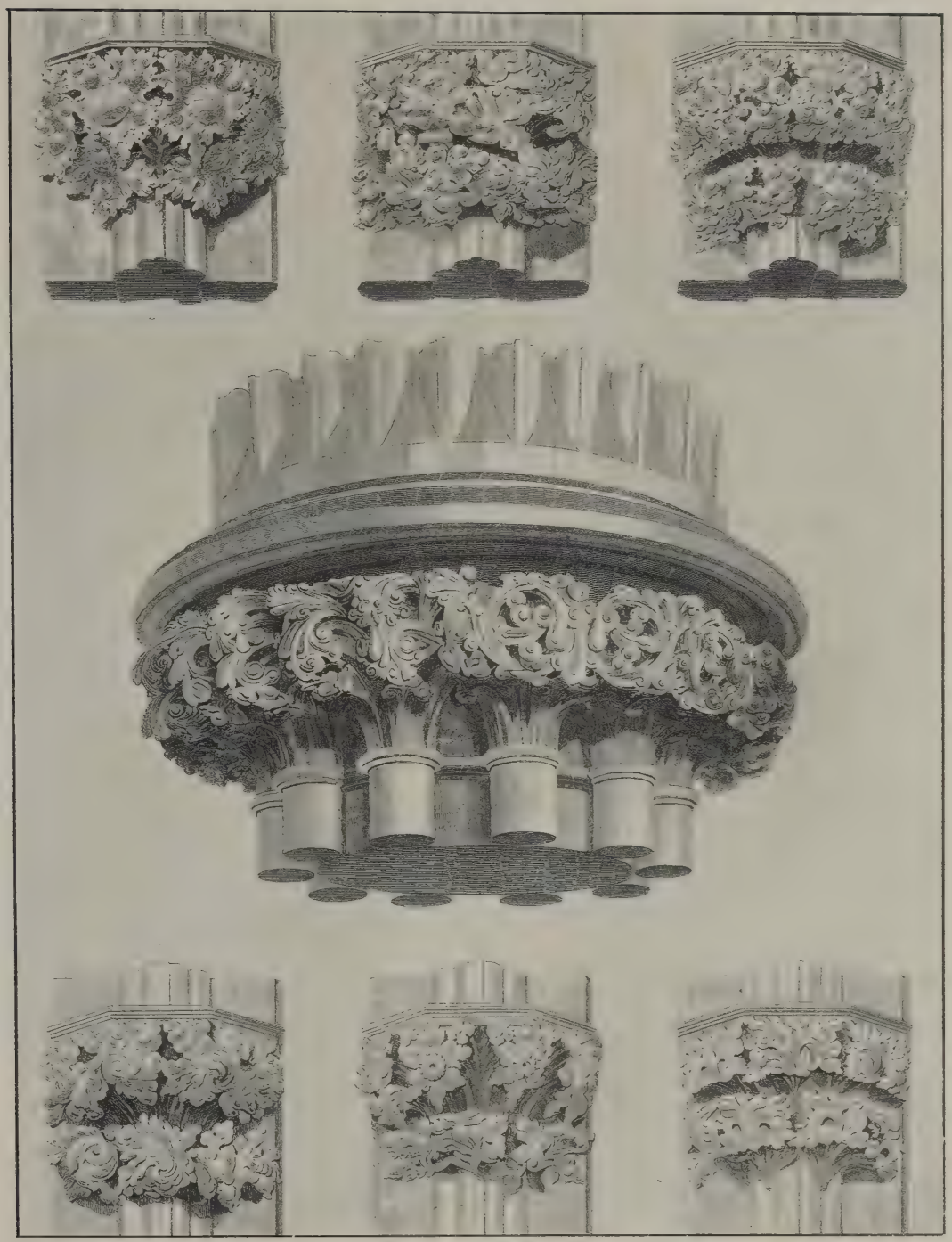
Beverley Minster: Tomb of Lady Percy



S. S. Lincoln Minster : Choir Screen



S. S. Lincoln Minster : Lavatory



J. B.

Lichfield Cathedral

1. Chapter House ; 2-7. Lady Chapel.

invented and most fashionable ogee arch (536). Among the most remarkable capitals of the period are those representing the Seasons in Carlisle cathedral (534).[1] Capitals, greatly undercut, were destroyed in the fire in Selby chancel; good examples of undercutting remain in the arcading of the aisles of Beverley minster nave (529); the choir screen of Lincoln minster (536) and Lichfield Lady chapel (537). Nowhere is the undulation of the leafage more vigorously displayed than in that marvellous *tour de force*, the tomb of Lady Idonea Percy in Beverley minster, *c.* 1340 (535). The undulatory movement commenced with the

F. H. C.

Wolborough, Devon

crockets, of which a good and early example is seen in the sedilia of Exeter cathedral (531). In the choir screens of Southwell and Lincoln (533), and the Easter Sepulchres of Hawton, Notts., and Heckington and Navenby, Lincolnshire, undercutting is abandoned in favour of the most profuse and delicate diaper.

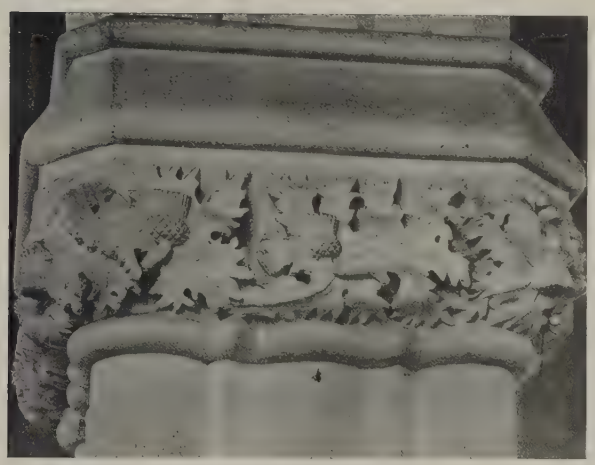
After the Black Death of 1349 the foliated capital shared in the general sobering of architectural ornament. Where it was still employed, it sometimes took the form of isolated leaves gummed, as it were, round the bell of the capital, as in

[1] See the writer's *Misericords*, 114.

the naves of Beverley minster (866) and Holy Trinity, Hull; small as they were, however, they could be and were made to tell by the application of gilding. As a rule, the foliage took the form of very large leaves enwreathing the bell of the capital; a type found at times everywhere, but nowhere employed with such freedom

F. H. C

Bradninch, Devon

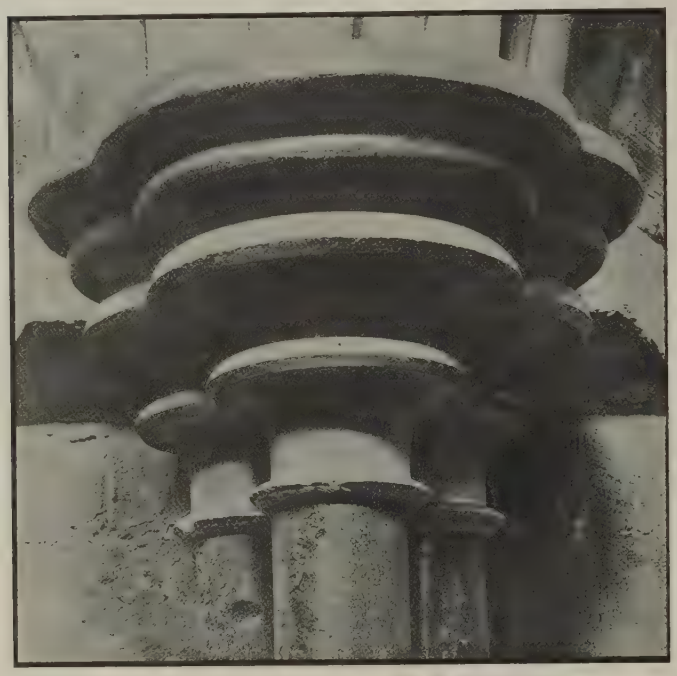


F. H. C Whimple, Devon

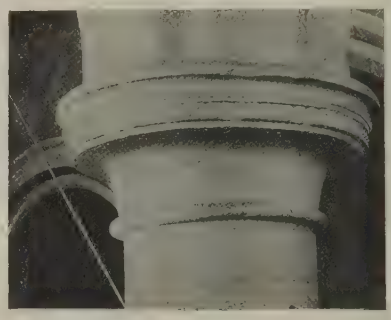
E. K. P. Woodbury, Devon

and abundance as in the West of England; an early example of the large-leaf treatment is to be seen in the sacristy of Bristol cathedral, *c.* 1330. In Cornwall, Devon, and the adjacent counties numerous capitals may be seen with large-leaved foliage; *e.g.*, the Dorset aisle in Ottery St. Mary, Devon, which is 1519-1530; Woodbury, Whimple, Bradninch, Devon (539); Wolborough, Devon (538), and the north transept of Ashbourne, Derbyshire (530). As a rule the foliated capital went

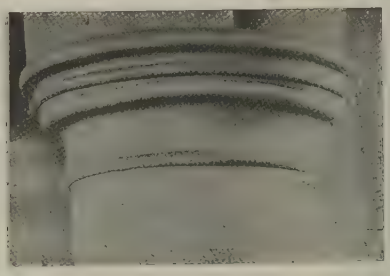
out of use, whether because its delicate work could not be appreciated when "skied" on the late lofty piers, or because the value was taken out of it by the irradiation of stained glass.



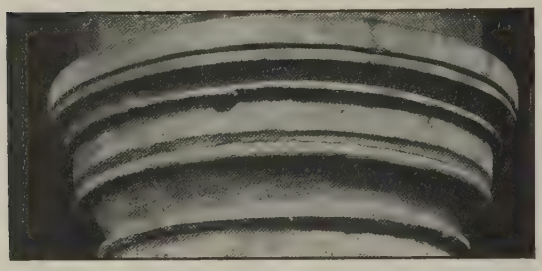
S. S. Lincoln Minster: Nave



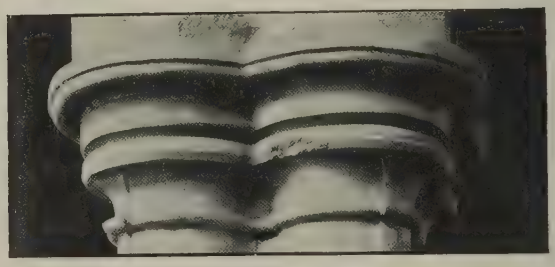
G. G. B. Hemington, Northants



F. B. Limpsfield, Surrey



G. G. B. Moulton, Lincs.



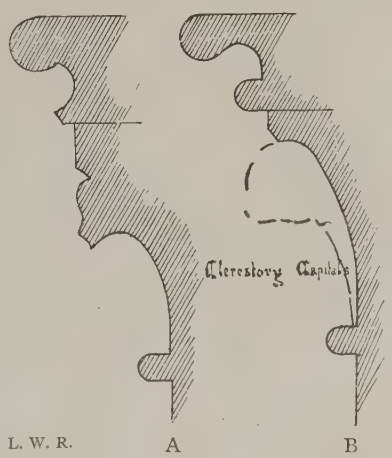
G. G. B. Rippingale, Lincs.

SECTION III.—THE ABACUS

The abacus is a slab set on the capital to provide yet further bearing for the spring of the arches above. As a rule, it projected even further than was necessary

for that purpose; partly for artistic reasons, partly to provide support for planking employed in turning the arches.

In plan the Romanesque abacus was, normally, rectangular; *e.g.*, in the west front of Lincoln (498), 1092, and in the twelfth century at Selby (505) and Whaplode (501). Where, however, the pier was a cylinder, the abacus was often circular, *e.g.*, in the naves of Tewkesbury (42), Malmesbury (499), and Gloucester (463). In Durham chancel octagonal abaci occur over circular piers. In the Gothic work of the late twelfth and the early thirteenth century, the abacus as a rule was circular on plan; *e.g.*, not only over circular shafts, as at Lincoln (540), but over octagons, as at Reigate (498), or a compound pier, as in Lichfield cathedral (537). Octagons also were common, especially in the early Gothic of the West of England, *e.g.*, Wells (469), St Mary, Shrewsbury (515), and Slimbridge (514). At Wells, however, the abacus frequently remains square on plan, as it did with good effect in nearly the whole of French Gothic.



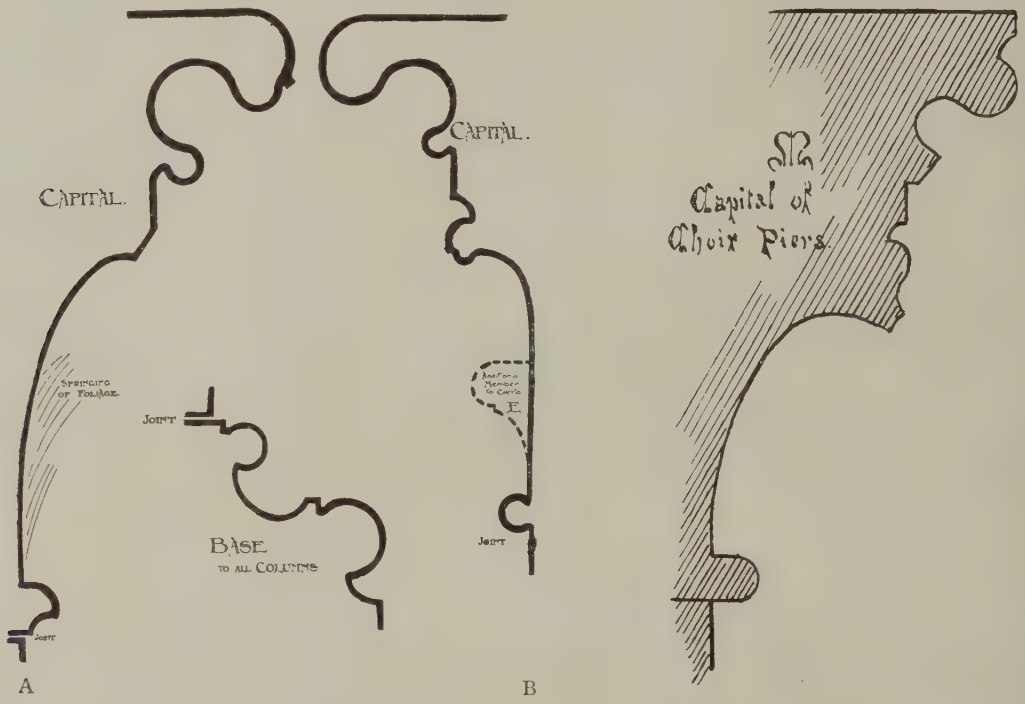
Boxgrove Priory

Progress in arcuated construction was rapid among the Anglo-Norman builders, and by the end of the eleventh century they were already in Ely transept dividing the abacus into as many parts as there were arch-orders to receive; this subdivision of the abacus, correlating it logically with the orders of the arch above, was a great step in advance (462). In Peterborough chancel, set out in 1117 or 1118, the treatment of the abacus is highly scientific (464). In the naves of Durham, Peterborough, etc., as we saw above (p. 467), the columns and shafts of the compound pier had been correlated with the orders of the arches and the ribbing of the vaults above; in Peterborough chancel the piers are simple cylinders or octagons, but the abacus is carefully split up to receive the orders of the pier-arch on either side, as well as the roof shaft in front and the transverse arch of the aisle vault behind: so advanced a treatment of the abacus can hardly be paralleled elsewhere in Europe at this period; another good example of the subdivided abacus is illustrated from Byland abbey (506).

Of the Romanesque abaci one of the simplest forms both in Normandy and England is that illustrated from Compton, Surrey (498), where two vertical faces are separated by a straight chamfer; in variants at Harmston, Lincolnshire (488), and St. Mary, Shrewsbury (498), the lower vertical face is omitted. Much more often, however, in both counties, there is a hollow chamfer; *e.g.*, in Remigius' work at Lincoln (498), South Stoke (548), Great Bedwyn (502), St. Mary, Shrewsbury (498), and St. David's (503): at Broadwater (493) there is a combination of the straight and

hollow chamfer : moreover, between the upper vertical face and the hollow chamfer, as at South Stoke and St. David's (503), is cut an angular notch or *quirk* ; this quirk may also be repeated below.

Turning to the Gothic abacus, the salient fact is that it is normally circular, though sometimes octagonal on plan over octagonal shafts ; circular abaci are shewn over compound piers at Waddington (521), Boxgrove (473), Bridlington porch (523), West Walton (516), and elsewhere. A second distinction between the Norman and Gothic abacus is that the former was square-edged on top, the latter rounded, *i.e.*,



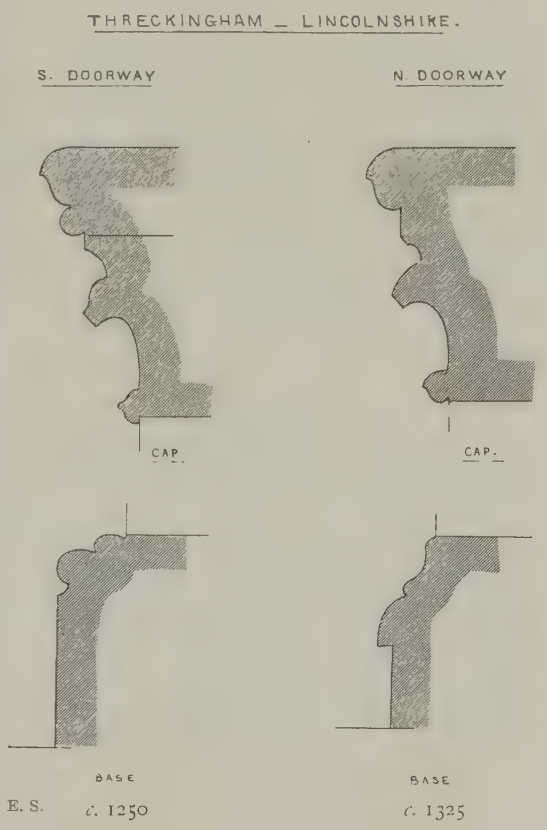
L. T. M. Binham Priory : West Front L. W. R. Boxgrove

molded ; examples of the unmolded abacus do occur in the thirteenth century, *e.g.*, at Boxgrove (542) and Moulton, Lincolnshire (540), but they are exceptional. A third distinction between the two is that the early Gothic abacus was deeply undercut to produce a band of shadow, *e.g.*, Boxgrove and Binham priories. When the hollow between the abacus and the molded capital disappeared, the abacus blended into the molded capital and ceased to exist as an independent entity. The shadow band is well shewn at Lincoln (540) and Dore retro-choir (492). Where a tough freestone could be obtained, the abacus was often excessively undercut to get this shadow effect, *e.g.*, at Binham (542). By the fourteenth century the independent abacus had ceased to exist in molded capitals, yet in

many foliated capitals it remained in use to the end; *e.g.*, the fourteenth-century nave of Beverley minster (776).

THE MOLDED CAPITAL

From the first there was a tendency in England to substitute the molded for the foliated capital. As we have seen, the ancient Corinthian capital was the source from which a large proportion of the foliated capitals derived: it may be that the molded capital also is but the Corinthian capital with the foliage omitted from the bell, because beyond the powers of the carver; foliage could be, and no doubt often was, painted on it, as we know it was on plain cubical capitals. Sobriety of detail was enjoined on, and was adhered to in the earlier Cistercian churches, and early capitals with plain bells are therefore common in such churches as Pontigny, *c.* 1150; and not much later at Buildwas, Fountains, Kirkstall, Roche, Furness, Byland, Jervaulx, Dore (546). These capitals, however, are not confined to Cistercian churches; they occur, for example, in the nave of St. Etienne, Nevers, the choir of which was consecrated in 1099; in the Benedictine cathedrals of Canterbury (in the eastern crypt, *c.* 1179), and Rochester, *c.* 1200; in the Gilbertine church of Old Malton, and in the Secular Canons' church of Ripon minster (1154-1181). Both in France and England they occur in parish churches also; *e.g.*, in England at Grantham,[1] Hartlepool, and Darlington; their frequency in the North of England may well be due to the influence of the Yorkshire Cistercian abbeys.

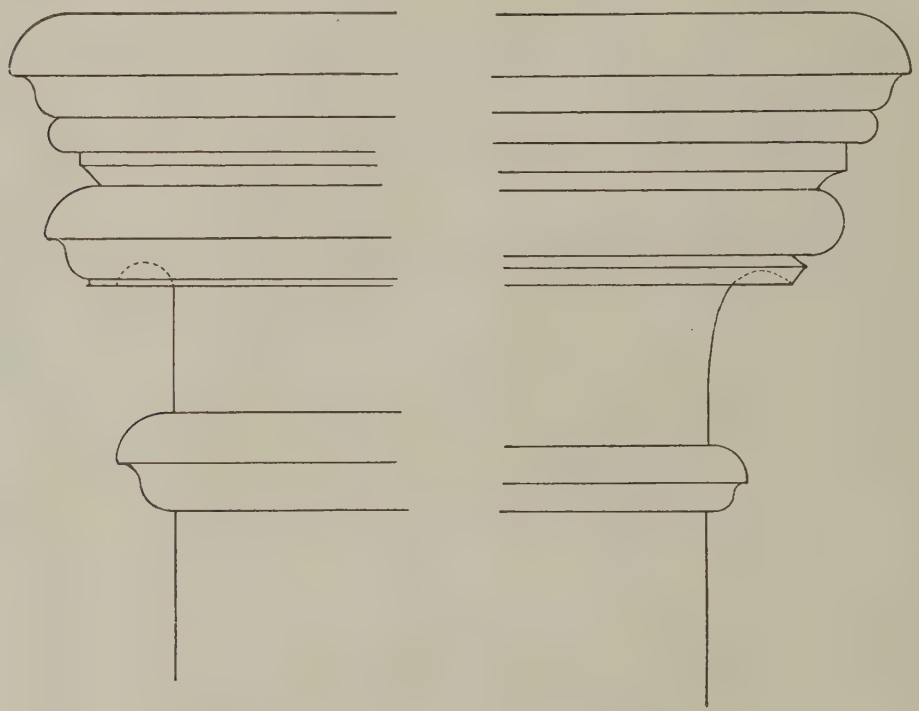


There was a practical reason for their adoption; viz., that capitals, bands, and bases could be and often were turned in the lathe; a molded capital could be turned in the lathe rapidly, accurately, and cheaply. The molded capital had also æsthetic recommendations. It harmonised with molded abacus, molded annulet, and molded

[1] The molded capitals at Grantham were intended to receive carving, to judge by those which are so finished.—A. H. T.

base; moreover, the molded curves of the arch above were stopped with perfect propriety by the horizontal lines of a molded capital. Nevertheless, in France the molded capital went ever more and more out of use, except in such minor work as the shafts of a window jamb. In England its popularity steadily increased, and in the end it ousted the foliated capital almost everywhere except in the West country, where curious examples are common of molded superposed on foliated or figure capitals.

Capitals so plain as those of Roche (470) and Dore abbeys (546)—with nothing but

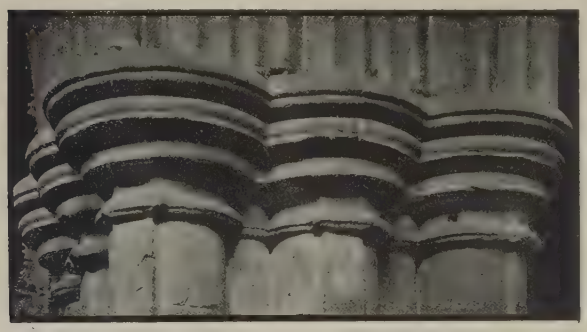


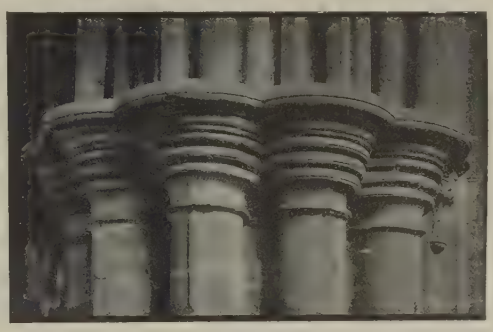
J. C. Wittersham, Kent. Beverley St. Mary, Yorks.

a hollow curve between abacus and necking—cried out for ornamentation; and this was supplied in the thirteenth century by repeating on the upper portion of the bell one or more of the rolls which appeared on the abacus and the necking, thus reducing considerably the height of the exposed surface of the bell. Thus the members of a normal thirteenth-century impost came to consist of (1) a molded abacus; (2) an assemblage of minor moldings separating the abacus from (3) the midroll; (4) what was left of the bell; (5) the necking. Sections of two molded capitals are reproduced from the fine façade of Binham priory, Norfolk, built between 1226 and 1244 (542). In both the abacus is undercut; the neckings at the bottom of each are of

two varieties. In cap B there are two projecting moldings between the abacus and the necking; in cap A there is but one, all the bell being reserved for foliage. (It should be noticed that some of the caps of B type have a third member, E, between the abacus and the necking.)[1]

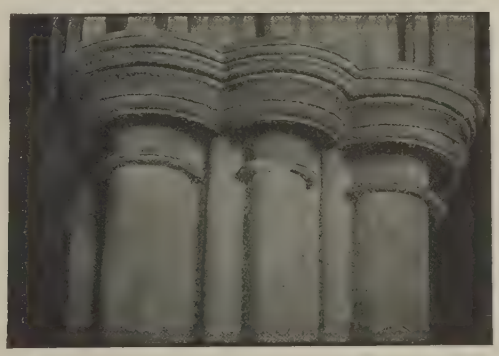
So also in the two capitals from the clerestory of Boxgrove, there are two members in A between the abacus and the necking, but only one in B to leave nearly the whole bell free for foliage (541). In the section of a pier of the ground





F. H. C. Chester Cathedral: Chancel

F. H. C. Exeter: St. James's Chapel



Dorchester, Oxon.: South Chancel

story (542) there are two intervening members and no foliage; it will be noticed that the upper edge of the abacus, like that of Moulton (540), is unmolded: at Dore also there is the same admixture of molded and unmolded abaci. A simple capital like that of Limpsfield, Surrey (540), or that of B in the Boxgrove clerestory, is quite satisfactory: nevertheless it is but rarely found, the carvers ever experimenting by altering the form of the rolls and by adding new combinations

[1] For the complete set of drawings of Binham façade by Mr Leslie T. Moore, see *Builders' Journal*, 2nd March 1904; for those of Boxgrove see monograph by Mr Lacy Ridge.

of fillets and quirks, as at Moulton, Rippingale (540), etc. So long as this type of capital prevailed, it was seldom forgotten that the abacus was a distinct member from the capital, the distinction being marked by the hollow in the undersurface of the abacus to get depth of shadow; at Beverley (471) the contrast between abacus and capital is still further emphasised by constructing the former of marble, the latter of freestone. This undercutting of the abacus occasionally survives in the fourteenth century; *e.g.*, at Harleston, Northants, 1320-1325; and even later. In a way, the undercutting of the abacus echoes the undercutting of the "water-holding" base of the thirteenth century. Beneath the abacus room was sometimes found for a band of small nailhead or tooth ornament, as at Hemington, Northants (540). Later examples of this capital are figured from the chancel of Chester cathedral, which was rebuilding in 1283 (545).

G. G. B. Dore: East End

By the fourteenth century the undercut abacus went out of fashion, just as the "water-holding" base gave way to the base composed of a pair or triplet of rolls; and a new molded capital was evolved, which soon assumed a definite constant type, in remarkable contrast to the bewildering diversity of the capitals alike of the thirteenth and the fifteenth centuries. Minute variations are frequent enough in it; nevertheless the chief characteristics are adhered to with great persistence (544). The main points about it are (1) that for the roll molding of the abacus, whether simple or filleted, the scroll molding is substituted,[1] (2) that the abacus is absorbed in the capital by the

F. H. C. Church Handborough, Oxon.

[1] The scroll molding of the abacus was in constant use so early as 1192 in Lincoln choir (512).

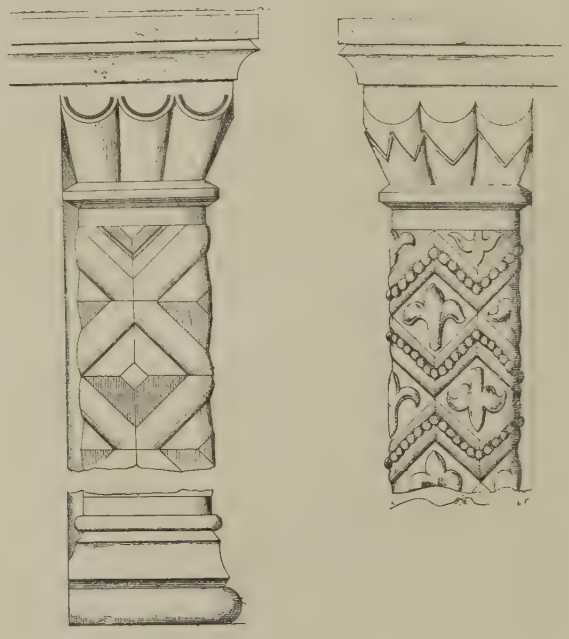
abolition of its undercut hollow, the place of which is taken by a semicircular roll, which (3) rests on a vertical fillet. The capital is composed of three members—the upper group, the midway group, and the necking—which gradually decrease downwards in projection, size, and importance. Almost always the upper roll—which now replaces the abacus—has a scroll molding. Each scroll molding consists of two portions: of which the upper portion is rounded off, and projects beyond and overlaps the lower, while the lower has an ogee curve. In the uppermost group, the scroll molding rests on a semicircular roll, and that on a vertical fillet, below which are one or two side hollows, demarcating by a band or bands of shadow the upper from the lower members of the capital. It is to be noted that normally the vertical fillet is in the plane of the wall above; *i.e.*, if produced upwards, it would coincide with the face of the wall above the abacus. The upper portion of the capital, as described above, consists of four or five members. In the example illustrated these are reduced in the mid portion to two or three; at Wittersham to a scroll molding with an ogee curve below and resting on a vertical fillet; at Beverley St. Mary to a semicircular roll resting on a small hollow beneath which is a diagonal fillet. Then comes the plain bell, now quite small as compared with that of the Binham capitals, which separates the mid member from the necking; the upper part of the bell is often continued by undercutting into the member above. The third and lowest member of the group, viz., the necking, normally consists simply of a scroll molding. The mid member varies much in design; the uppermost member and the necking most often have the scroll molding. Endless variants of the type occur, *e.g.*, at Threckingham, Lincolnshire (543), where the capital on the left is of earlier date. Occasionally, in molded capitals, both of the thirteenth and fourteenth centuries, two mid members occur, forming what is sometimes termed a double capital; *e.g.*, on shafts in the eastern piers of Wells nave.[1]

This effective and successful design often continues to the end of the fourteenth century and even beyond, especially in East Anglia. Examples are illustrated from Sleaford (482) and Leadenham (483), Lincolnshire, St. Mary's, Beverley (544), and the south aisle of Westhall, Suffolk (249). The capitals at Exeter (545) and Dorchester (545) are work of the first years of the fourteenth century. Another capital from Dorchester is illustrated on p. 265.

In the later molded capitals there is no one standard design; but amid their great diversity there are certain features by which as a rule they may be identified. In the first place the whole importance of the molded capital is reduced, *e.g.*, at Gloucester (463); as a rule, it has much less spread and depth than its predecessor; instead of having three or four groups of members, it is frequently reduced to two. Secondly, octagonal capitals, as a rule, had been hitherto employed chiefly over octagonal shafts or columns; now they are in frequent use

[1] Illustrated in *Gothic Architecture in England*, 445.

even if these are circular. Thirdly, the scroll molding, so very fashionable in the first half of the fourteenth century, is now almost wholly abandoned. Fourthly, the rounded upper edge of the molded capitals of the thirteenth and fourteenth centuries is discarded; the edge of the upper roll is variously treated, the most common form being a straight chamfer, *e.g.*, in Canterbury nave (495). Fifthly, in the necking also the scroll molding is abandoned; favourite forms are the semicircular roll and the semi-hexagon. In assessing the value of these and other designs of the molded capital, it is to be borne in mind that, especially in late work, the projecting members were given more relief and the hollows greater depth of shadow by the disposition of paint and gilding: also that they came to form members, and subordinate members, of a general colour scheme; and had no longer an independent architectural value. An example is illustrated from Church Handborough, Oxon. (546).



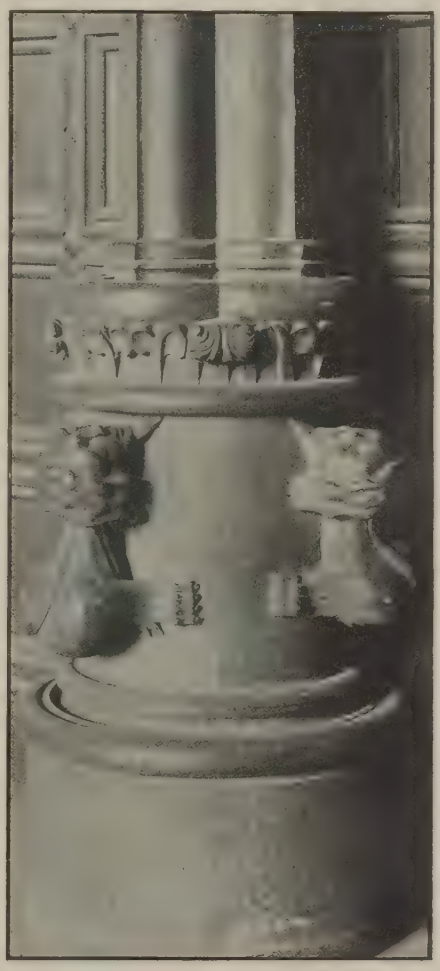
South Stoke

PART III.—THE BASE AND PLINTH

Of all the members of a Gothic building the most important to the archæologist are the base and plinth; so characteristic, so constant, and so easily discriminated are they as regards plan, projection, height, and profile, that they are of the utmost value as a criterion of chronology and deserve most careful study. They may be divided into groups as follows:—

The *First* group comprises the characteristic Norman bases; they may range up to the middle of the twelfth century or even later. In this period the base proper, *i.e.*, the parts between the plinth and the pier, received very little attention; it was not recognised that, being so prominently exposed, the base deserved and would repay artistic treatment. The plinths, as a rule, are broad, low, and rectangular, except that a cylindrical pier may have a circular plinth; the bases quite insignificant, even at the foot of such gigantic piers as those of the naves of Gloucester and Tewkesbury (463). They may consist of a straight slope or chamfer, as at Compton Martin, Somerset, or of a hollow chamfer as at Gloucester, or two hollow chamfers, or of a roll, or of various combinations of chamfers and rolls, as in Lastingham crypt (82) and at South Stoke (548).[1]

Second.—But study of classical models ultimately brought back into use in France, and through France into England, variations of the ancient Attic base of Greece and Rome, a combination of a small upper roll and a larger and more projecting lower roll, between which is a hollow or *scotia* separated from each of them by a narrow fillet; the *scotia* is semi-

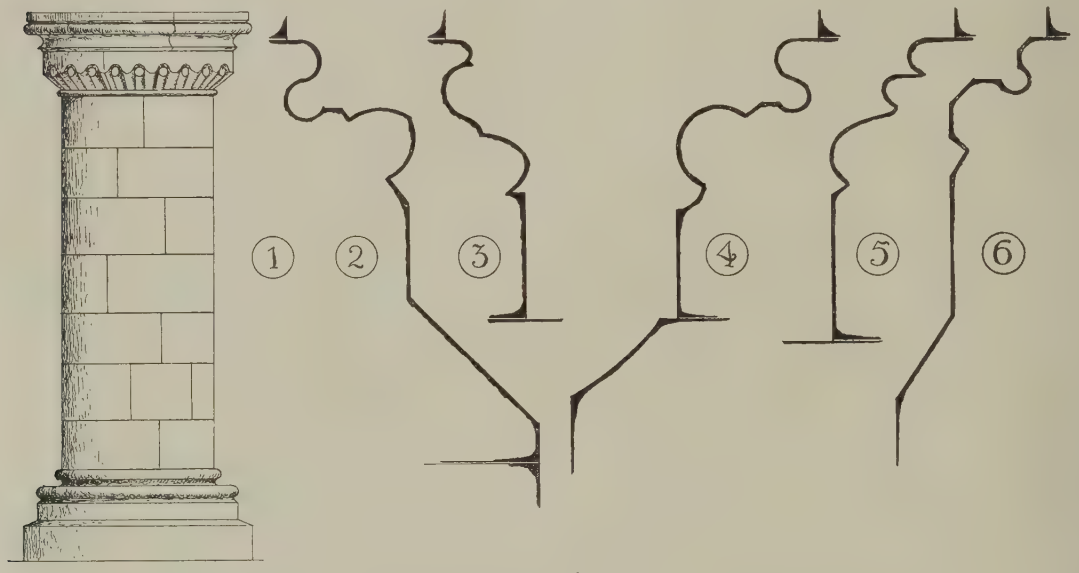


S. S. Lincoln: Galilee

[1] It appears certain that in a very large number of cases the rectangular lower plinths of columns in the nave arcades of parish churches, which are often found beneath thirteenth and fourteenth century columns, are in large part composed of pieces of the old wall in which the arcades have been cut, left *in situ* and cased with new stonework.—A. H. T.

circular and is cut laterally, *i.e.*, it is a *side* hollow. Of this base examples occur before the middle and it becomes increasingly frequent in the last half of the twelfth century, *e.g.*, in Selby triforium (505) and St. Mary, Shrewsbury (552), often with the fillets omitted.

Third.—But with increasing frequency in the last quarter of the century an important variant appears, so characteristic as to be a valuable chronological criterion, viz., that the lower roll, instead of being semicircular, is flattened, as if by pressure of the load above it, so as to be semi-elliptical; this is so both in France and England; *e.g.*, in Sens and Canterbury cathedrals. The flattened lower roll of the base was in fashion just about the same time as the water-leaf capital (p. 506):



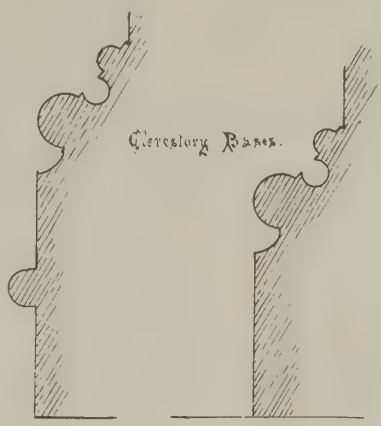
L. W. R. Boxgrove Priory

the occurrence of the two together is a decisive criterion of date: an example is figured from Chichester retro-choir (552).

Fourth.—Then came the desire to get more play of light and shade, easy enough to obtain in a molded capital, but not so easy in a molded base at one's feet. The method adopted was to enlarge the hollow or *scotia* between the two rolls of the Attic base from half to three quarters of a circle; *i.e.*, it was now cut *downward* as well as sideways. This descending three-quarter hollow, if well undercut, provided the desiderated band of shadow; *e.g.*, in Chichester retro-choir (552), Binham façade (542), and Boxgrove (550). All over Europe this improvement was in vogue, and remained in use from *c.* 1175 to about the end of the thirteenth century. It had, however, practical disadvantages. If used out of doors, rain collected in the undercut hollow—hence its name, *water-holding* base—and, aided by frost, eventually

disintegrated the base; indoors it filled up with dust, reducing or obliterating the shadow effect. Endless variations were played on the design of the water-holding base; but the main characteristics are constant; viz., the presence of two rolls separated by a side hollow undercut downwards, and the fact that the lower roll is no longer flattened. Early examples of it occur in the piers of the ruined Norman nave of Boxgrove priory (550), and in the triforium of Selby nave, *c.* 1190 (505). It is to be noted that the lower roll of the water-holding base is almost invariably worked out of the block with which it usually stands flush by a *quirk* or angular nook.[1]

Fifth.—At the same time an alternative base was in use; in this, for the hollow an intermediate roll was inserted; thus it had a triple roll; less frequently only two rolls are employed. Inferior to the water-holding base artistically, it was without its practical disadvantages, and in the end completely ousted it. It is most common in the latter years of the thirteenth century, but was much used throughout the fourteenth century and even later. It is the favourite base in Westminster abbey from 1245-1272 (480, E); and appears in the tower piers of Merton College, Oxford, *c.* 1290, and Ely presbytery (552). Often it alternates with the water-holding base, as at Boxgrove (550).[2]



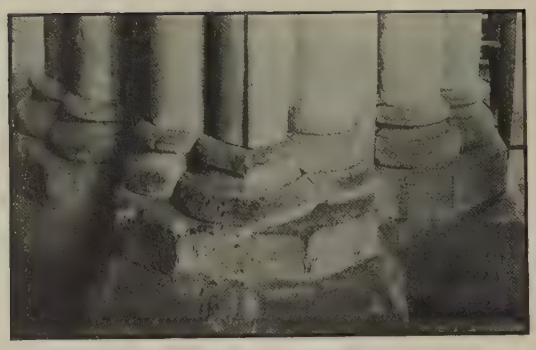
L. W. R. Boxgrove Priory

Meanwhile the plinths had been developing; the sharp corners of a square Norman plinth were dangerous to the shins, besides taking up much floor space; they were chamfered off, converting the square into an octagon; *e.g.*, Beverley minster (552). An alternative method in designing the plinths of a compound pier was to let them follow the plan of the various columns and shafts of which the pier was composed; still more economising floor space; *e.g.*, in St. Hugh's chapel, Lincoln minster, *c.* 1192 (552). Both methods were in use together; perhaps the latter was the more common from *c.* 1250–*c.* 1350. Before *c.* 1250, however, the octagonal plinth was most in vogue; and in late Gothic was almost universal.

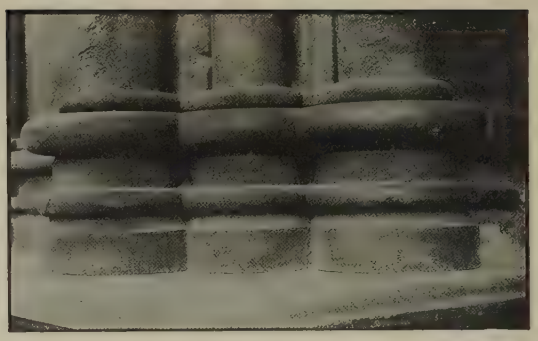
So long as the plinth remained square, there were unoccupied corners which cried for ornament; this was supplied by what is termed a "*griffe*" or "*spur*," which is usually of foliage; an unusually elaborate example is shewn from Ely presby-

[1] Sections of the water-holding base are shewn from Binham façade (542), Boxgrove (550), and Westminster (480): see also examples from Lincoln eastern transept (474), Galilee (549), and St. Hugh's chapel (552), Eaton Bray (481), Beverley minster (552), Chester choir (552).

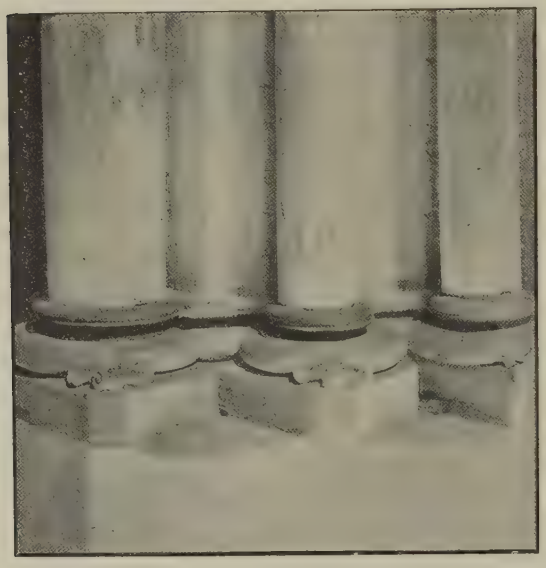
[2] It is to be noted that the water-holding base on the right has been only blocked out; this is interesting as shewing the process by which a molded base was obtained.



F. H. C. St. Mary, Shrewsbury



S. S. Lincoln : St. Hugh's Chapel



F. B. Chichester Retro-choir

F. B. Beverley Minster

W. W. Ely Presbytery

F. H. C. Chester Choir

tery (552); very pretty spurs are seen at St. Cross, Winchester. Small foliated spurs occur in Chichester retro-choir, *c.* 1190 (552).

Another important development took place in the height of the plinth; this in the twelfth century was low; but in the thirteenth century it begins to rise; it again rises in the fourteenth century, as may be seen in Westminster nave by comparing the eastern with the western bays (480);[1] in the fifteenth century it rises higher still in the parish churches, to overtop the fixed benches which had by now come into common use; in the sixteenth century it rises again; and in the seventeenth Sir Christopher Wren gave it yet another lift to overtop his tall pews.

F. H. C. Exeter Nave

This raising of the plinth led to further elaborations. Sometimes the base was doubled, sometimes the plinth; to lofty plinths moldings were almost always added; finally molded base and molded plinth were blended into one composition, and base and plinth become indistinguishable. This raising of the plinth is seen very early in Lincoln minster, *e.g.*, in St. Hugh's chapel (552); and, later, in the Galilee porch (549), the Chapter house, and the retro-choir.[2]

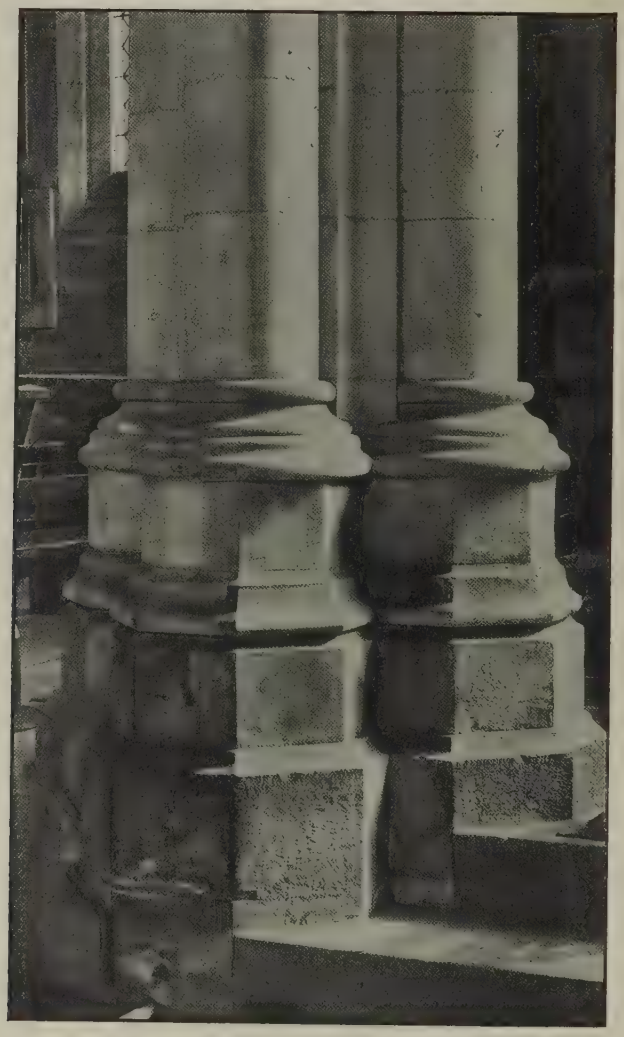
One further improvement—artistic as well as practical—occurs in the early Gothic work at Lincoln, *e.g.*, St. Hugh's chapel; it was to let the base project beyond or oversail the plinth. Thus shadow was obtained in precisely the same way as in the molded capital: the oversailing base appears in all the best designs

[1] Compare the plinths of Sleaford (482) and Leadenham (483), Lincolnshire, and St. Mary, Beverley (554).

[2] It occurs *pari passu* with the raising of the external ground-courses at Lincoln (p. 868).

till the end of Gothic architecture; it had the practical advantage of economising floor space.

Sixth.—In the fourteenth century the triple-roll base had still a great vogue;



F. H. C. Beverley St. Mary

but there was a still greater liking for ogee curves and for undulation generally; and these soon found their way into the moldings of the base and plinth. The new design, however, did not crystallise as yet; and all this group of bases may be characterised as being but experiments leading up to the completely standardised

base of the fifteenth century, though at times in almost everything but elongation of proportion the type is perfected; *e.g.*, in the bases of the reredos of Beverley minster,[1] which only require to be given less projection and greater height to obtain the tall, slender, well-proportioned base and plinth of the following century: *cf.* those

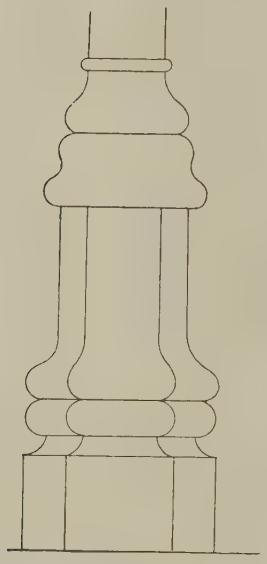
F. H. C. Bloxham, Oxon.

of Sleaford (482) and Leadenham (483). The double base of Exeter nave is transitional in character; it is really a double-roll base, with the upper roll concave instead of convex; this paves the way to the next type (553).

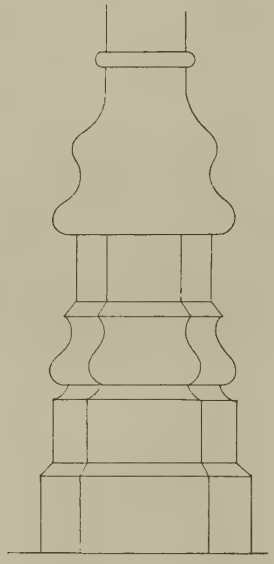
[1] For section see *Gothic Architecture in England*, 452.

W. W. J. C. Norwich Cloister

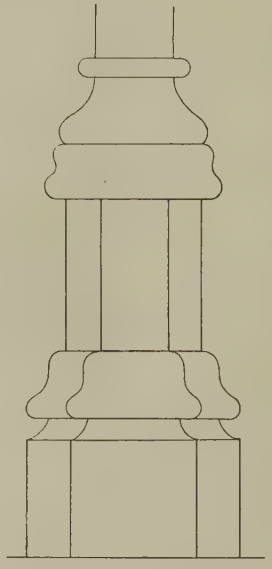
D. B. S. Juan de los Reyes, Toledo



F. A. P. Crosby Hall



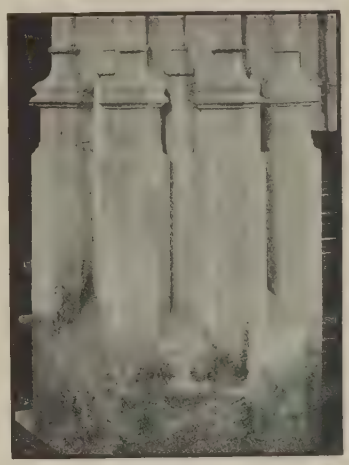
Carbrook, Norfolk



Stanford St. John's, Notts.

Seventh.—In the later fourteenth and in the fifteenth century a perfectly satisfactory molded base and plinth was evolved, just as in the fourteenth century there had been evolved a perfectly satisfactory molded capital. The pier of Beverley St. Mary (554),[1] counting from the ground, has five members. There is (1) a tall octagon with a hollow chamfer at the top; (2) a short unmolded octagon; (3) a molded octagon with an undulating profile; below it has a quirk giving a narrow band of deep shadow, at the top it has a hollow chamfer; (4) above this is a low unmolded octagon; (5) above this is an oversailing base, the profile of which consists of two wave curves separated by a quirk; the upper edge of the base terminates in a necking; in later Gothic bases this necking is almost invariably present, either semicircular, as here, or a flowing form of the roll and fillet, or of the scroll mold.

F. B. King's College Chapel



F. B. Cirencester

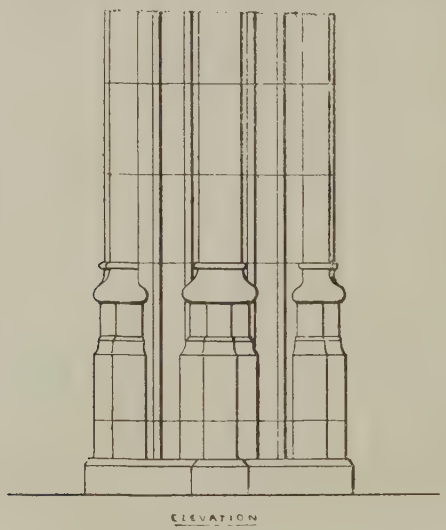
F. B. St. Mary Redcliffe, North Transept

In the bases with water-holding hollow or with triple roll the various rolls form so many horizontal stops or barriers; in the later bases there is a delightful flow of curve from base to plinth and plinth to the ground; the curves of the members of the pier flowing downward in graceful transitions. The bases from Norwich cloister are of the period 1299-1325; that on the right retains some of the character of the triple roll; that on the left has a fully developed double ogee curve or "*bracket*" (556). So also at Threckingham, the earlier base—that on the left—retains the base with double roll, while the later base on the right has an undulating curve (543). Characteristic late bases are illustrated from Crosby Hall, London, Carbrook, Norfolk, and Stanford St. John's, Notts. (556).

Eighth.—Contemporary with the last, but more frequent in later work, is the

[1] Illustrated in *Gothic Architecture in England*, 697.

complex base; this is rare, and adopted only where the pier was encircled by a large number of columns and shafts, each of which it was desired to provide with an independent base. Simple forms occur in the south transept of Gloucester cathedral, 1330-1337, Swarby, Lincolnshire (558), and in the north transept of St. Mary Redcliffe, Bristol. In this latter (557) and in King's College chapel, Cambridge (557), all the bases, large and small, are at the same level. In the doorway of the Rochester Chapter house, at Cirencester (557), and Bloxham (555), and in St. George's, Windsor,[1] more happily, the bases of the shafts are planted at a different level from those of the columns. In late Flamboyant work abroad, *e.g.*, S. Juan de los Reyes, Toledo, the masons amused themselves with the fancy that the moldings of the vault ribs and pier-arcade had sunk inside the pier at the capital and reappeared on the surface at the foot of the pier, where each was solemnly provided with its own independent base and plinth (556).[2]



E. S. Swarby

E. S. Swarby

[1] Illustrated in *Gothic Architecture in England*, 452, 453.

[2] The illustration is from Dehio and Van Bezold's *Atlas*.

J. F. H. Ickford, Oxon.

CHAPTER IX

ON THE LIGHTING OF THE MEDIÆVAL CHURCHES

THREE main problems exercised the wits of the builders of the Greater mediæval churches. The first was so to plan the church that it should adequately serve the various purposes laid down by the ecclesiastical authorities; completely satisfactory plans were devised by the end of the twelfth century. The second was to vault all parts of the church, high and low, and to provide the necessary abutment; this problem also was solved by the end of the twelfth century at Canterbury, Chichester, Wells, and elsewhere. There still remained the problem of how to provide the church with adequate light. This problem was not and could not be seriously attacked till the difficulties of vaulting and abutment had been met and overcome: the first important step being taken by St. Hugh's architect in setting out Lincoln choir and eastern transepts with grouped lancets in 1192 (69). For the remainder of Gothic architecture till the very end the dominating influence in design was that of the lighting of the church: it was the continual extension of the lighting area which in the end converted what had been walls into isolated piers, and brought about the characteristic feature of perfected Gothic, skeleton construction; all this development being rendered possible by the adoption of the cross-ribbed vault, buttress, flying buttress, and pinnacle.

F. B. Hales, Norfolk

The oldest Norman churches were very dark, the windows being small, *e.g.*, at Ely (562) and Hales, Norfolk—in some parish churches but tiny slits in

the wall—and only one window inserted in each bay of the aisle and clerestory; when filled, as they would be in the Greater churches, with the thick, opaque, heavily coloured stained glass of the period, the interiors must have been intolerably gloomy. As the twelfth century advanced, the windows—oblong with semicircular heads—somewhat increased in size; *e.g.*, at Byland (562), but no great increase took place till the last quarter of the century, when the window heads began to be pointed to bring them into harmony with the pointed arches of the pier-arcade and of the transverse and wall arches of the vaults. The increase of dimensions in the new type of window—the lancet—took two directions. In France and the French choir of Canterbury, and in the wholly English school represented by Wells cathedral, Pershore and Glastonbury abbeys (560), the windows were increased in breadth but not in height, giving squat and ungraceful proportions; the windows of Wells are 13 ft. 5 in. high, and 5 ft. 4 in. broad (754). Elsewhere the window was vastly increased in height, but was allowed to remain narrow: thus the lancets of Hexham transept are $24\frac{2}{3}$ ft. high and $2\frac{2}{3}$ ft. broad; other charming sets of tall narrow lancets may be seen at Bottesford (562), Brecon priory, Finchale priory, Durham, Croxden abbey, Stafford, and elsewhere. At first the windows, whether round-headed or lancet, with few exceptions,[1] were but single lights, even in the western façades and those of the transepts, but as early as 1192 the single lancets were grouped together in Lincoln choir; in pairs in the aisles, in triplets in the clerestory of the choir and the façades of the eastern transepts,[2] thus doubling or more than doubling the amount of light (67). To this grouping the English lancet, when it was tall and narrow, readily lent itself, giving rise to combinations of the utmost elegance; *e.g.*, at Blakeney (898), the Grey Friars' church, Chichester (562), and Etton, Northants (562). But when it was broad, as in most

F. B. Glastonbury: South Aisle of Nave

[1] *E.g.*, the triplet in the south transept of Romsey, which was inserted *après coup*, and that in the west front of the Lady chapel of Glastonbury; illustrated in *Gothic Architecture in England*, 457 and 465.

[2] For the strange history of these transepts, the end bays of which were originally only one story high, see the paper by Mr Watkins and the writer in the *Journal of the R.I.B.A.*, 10th December 1910.

French work and in the West of England Gothic, then nothing was to be gained by grouping together two or more squat and inelegant openings; where the broad lancet prevailed, there lancet composition naturally failed to flourish.[1] It may be asked why some districts preferred the broad, others the narrow lancet. It may be suggested that the former offered much more scope to the glass-painter; larger medallions could be introduced, in which there would be room for figure subjects on a larger scale. On the other hand broad windows offered a large surface to wind pressure, and this could only be met by an unsightly framework of iron bars, which in no long time would oxidise and split the jambs and window arch. There would be no need of vertical bars and transoms in a window

Bottesford

Sandwich

Cowley

E. S. Temple Church

Carlisle 1

Carlisle 2

like that at Bottesford or Romsey; on the other hand the glass-painter would have his medallions reduced to less than 2 ft. diameter instead of the 5 ft. of Wells.

The grouping of the lancets was managed in different ways. Three lancets might be put in juxtaposition and the central one made the broadest, as in the clerestory of Lincoln nave (783); or the tallest, as in that of Ely presbytery (574). Or their several dripstones might be linked up, as at Sandwich, Cowley, and the Temple church; or they might be put under a single common dripstone, as at Carlisle (561), or diverse treatments might be combined. So also with combinations of two, four, five or any greater number of lancets. Several interesting examples are illustrated. At Weston, Lincolnshire, the three east windows are wholly in-

[1] There are a few exceptions; there is a triplet of lancets in the nave of Pershore (566), and very curious and ungainly grouping in a West of England window in the north choir aisle of Lichfield.

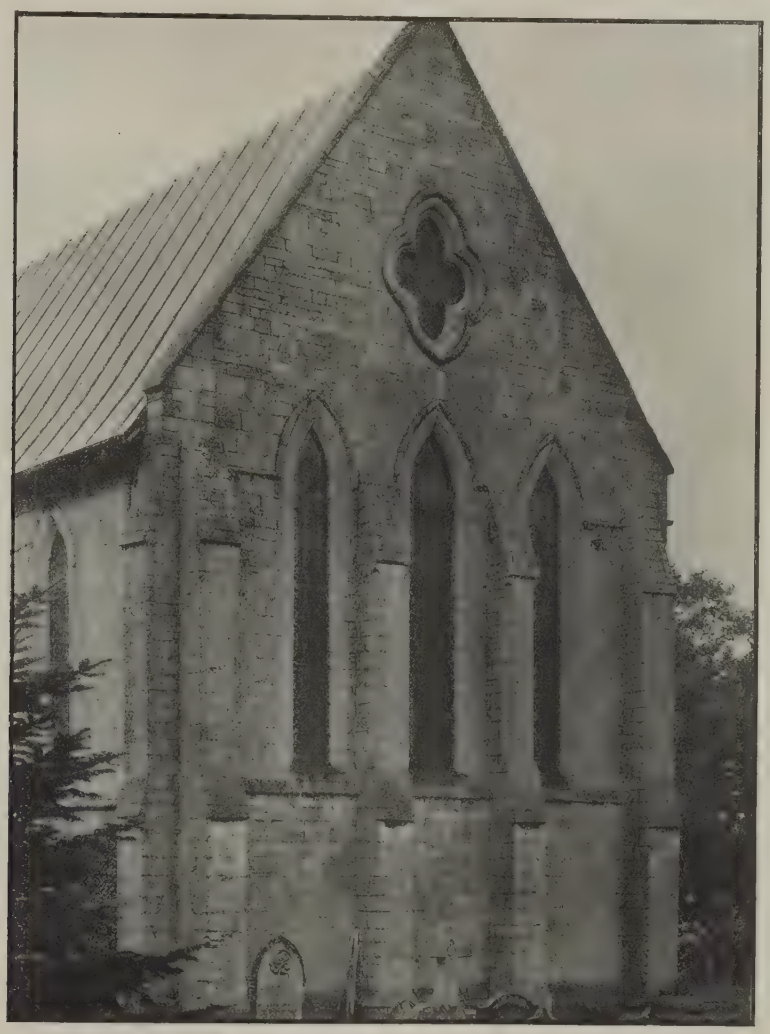
dependent of each other, being separated by buttresses (563). In the east end of Castle Rising, Norfolk, though the three sills descend to a common string-course, the three dripstones are independent (564). At Threckingham, Lincolnshire, though the three windows are round-headed, their dripstones are linked together (419).

In the west end of Romsey, the three windows are set under a common dripstone (571). At Lincoln each of the two groups of lancets is formed into a single

composition by being set in arcading (783). At Beverley each tier of lancets is grouped by joining up the dripstones (66) : so also in the north transept of York, and in the top story of the north transept of Hedon (570).

We may now proceed to consider the lighting of the interiors, first from the ends, and then from the flanks of the church. In a transeptal church light could be obtained from all four end walls ; west, north, south, and east. In the simplest form of Norman façade the windows are isolated and are superposed in rows ; at St.

Stephen's, Caen, the west front is three stories high, of which the ground story contains a doorway with a window on each side; in the middle story these side windows are repeated, and above the doorway are three windows; the top story



G. G. B. Weston, Lincolnshire

is a repeat of the middle story (567); at Southwell and Durham the west front was somewhat similar, but the two central groups of windows in each case have been replaced by a single large window with late tracery. In England the finest surviving

examples of Norman façades occur in the northern transepts,[1] viz., at Winchester (568), Norwich,[2] Ely, and Peterborough (569), where the typical composition, *e.g.*, at Peterborough, contains three rows, each of three windows, together with another window in the gable. In Winchester,[3] the earliest of the four, the façade is divided into three stories, plus a gable. In Norwich, by the insertion of three bands of arcading, the number of stories rises to seven, in addition to a gable: at Peterborough to six, there being but two bands of arcading (569). At St. Cross, Winchester, is an eastern façade, which though belonging to the third quarter of the twelfth century, still retains the ancient multiplex elevation (401). Rather later, but still retaining the ancient elevation, is the fine east front of New Shoreham (389).

F. B. Castle Rising: Norfolk

When, later on, the principle of grouping lancet windows was introduced, the façades at first adhered to the Norman design of multiplicity of stories, disposed more or less in conformity to the design of the flanks of the façade; *e.g.*, at Lincoln (67), Beverley (66), Salisbury (943), and Hedon (570), than which more elegant compositions are not to be found in England or in Europe. Such a design, however, retaining so many horizontal bands of walling, leaves no great room for windows. This was recognised in Beverley minster, where, though the façade of the eastern transept was designed, as at Norwich, with a band of arcaded wall above the lower tier of windows, the band of walling, in spite of logic, is suppressed in the façade of the central transept, and the tier of windows below gains in height accordingly.

The next step was to throw the two central tiers of windows into one, thus immensely increasing the volume of light. This occurs in the west front of Romsey, *c.* 1200 (571), the east front of Boxgrove, *c.* 1235 (41), and the north transept of York, *c.* 1250 (176), where the façade is filled with five enormous lancets, the famous

[1] The eastern buildings of the cloister usually abutted on the south transept: so that the chief transeptal façade is usually on the north.

[2] Illustrated in *Gothic Architecture in England*, 31.

[3] In these windows, as at Peterborough, late Gothic tracery has been inserted.

"Five Sisters." And, of course, when big traceried windows were introduced, they were naturally employed to fill up the whole central space of the façades; once more improving vastly the lighting of the interior: early examples are the western façades of Binham (595) and Valle Crucis abbeys (598), the south transept of Tintern abbey, the east façade of Lincoln retro-choir and the northern façade of the eastern transept of Durham. Soon the traceried end windows reached gigantic dimensions, quite out of scale with the façade; *e.g.*, at Guisborough abbey, Yorkshire, where the east

F. H. C. Ashbourne, Derbyshire

F. S. Oxford Cathedral: Chapter House

window had geometrical tracery and was 63 ft. high; at Carlisle, where the east window, and at York (639), where the west window has flowing tracery; these windows are 26 ft. wide, the former being 51 ft. high, and the latter but little lower; while the east window of Gloucester choir, which has rectilinear tracery, occupies a still larger area (652); at Gloucester indeed all the four end walls of the church were converted into great sheets of glass. Such a design reduces the multitudinous stages of the early façades to three; the wall which supports the window and which may contain a doorway; the great window, and the gable. The façades of the church become three-storied like the interior.

Nor did the reduction of the stages of the façade end here. In the later Gothic, when lead had come into general use as a roof covering, the roofs were often depressed and the gable disappeared; this reduced the façade to an elevation of two stories only; a notable example is the east front of York minster (154). The two-storied façade also finds its parallel in many interiors, where, by the absorption of the triforium into the clerestory, as at Southwell and Pershore (765), or its abolition, as at Sherborne (770), the internal elevation is one of two stories. Such then, in brief, is the history of the English façade—a history in the main conditioned by the lighting problem.

F. R. L. Pershore

Valuable, however, as the end windows were as a source of light, the vast length of the English naves, chancels, and transepts needed side lighting as well, and this was supplied from aisle windows, and, in the Greater churches almost always, from clerestory windows as well. The latter system, providing top lighting, is far more effective and picturesque; nevertheless, from first to last, there were those who preferred to rely mainly on aisle light rather than on top light. In the Norman naves of Tewkesbury (59) and Gloucester (758) the original clerestory windows were small, but the aisle walls were made unusually lofty so as to get headway for extra large windows; and that this light might not be hindered of access to the nave, the piers and arches of the nave arcade were heightened proportionately (463). In the nave of Canterbury (1380) the aisles were raised to so great a height as to reduce the clerestory to insignificance (572); while in the Temple church, London (18), and Bristol cathedral (398), and in the Plantagenet Gothic of France (289), the clerestory was omitted altogether, the aisles being raised nearly as high as the nave, so that their windows should give nearly as much light as normal aisle and clerestory windows combined.

These, however, in England were exceptional designs: the tendency more and more of Gothic architecture was to increase the height of the clerestory rather than that of the aisle. Of tall clerestories the earliest is that of Westminster choir (1245), which undoubtedly, as the absence of a clerestory passage and the character of the window tracery shews, is of French inspiration (391). Many large clerestories followed,

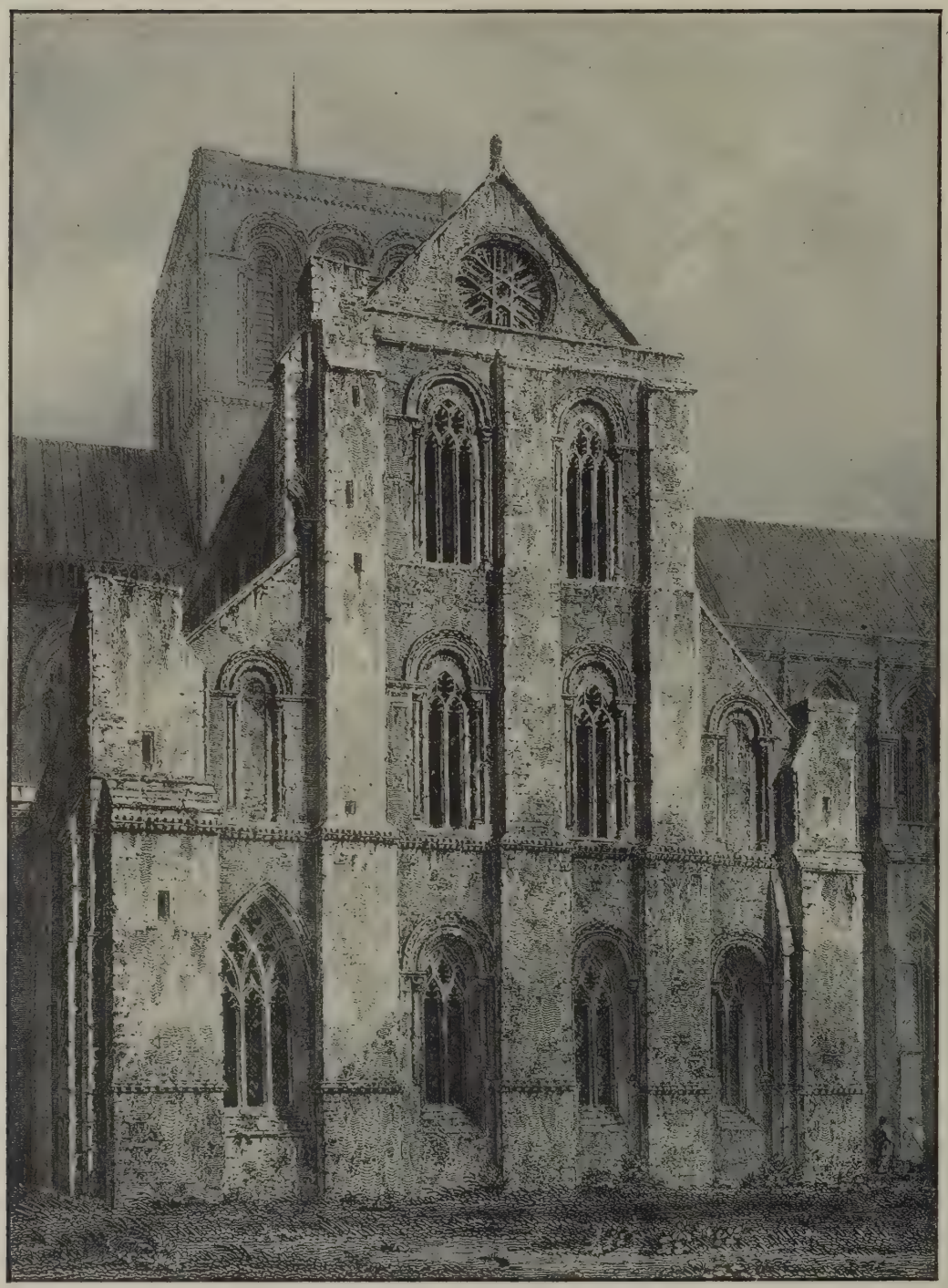
characterised as a rule, however, by breadth rather than by height; *e.g.*, *c.* 1256 in the Lincoln retro-choir (784), and *c.* 1280 in Exeter choir (393). In Gloucester choir (*c.* 1350) the clerestory rose to a noble height and became practically a continuous

T. G St. Etienne, Caen

sheet of glass (652).[1] A similar development of the clerestory took place in many a parish church.

In earlier days, however, another source of side light had been tapped; this was borrowed light—borrowed from the triforium chamber. In such a church the

[1] In Glastonbury choir the clerestory windows were prolonged downwards, as in Notre Dame, Paris and the walls were panelled in Gloucester fashion by Abbot Monington (1341–1374).



J. B.

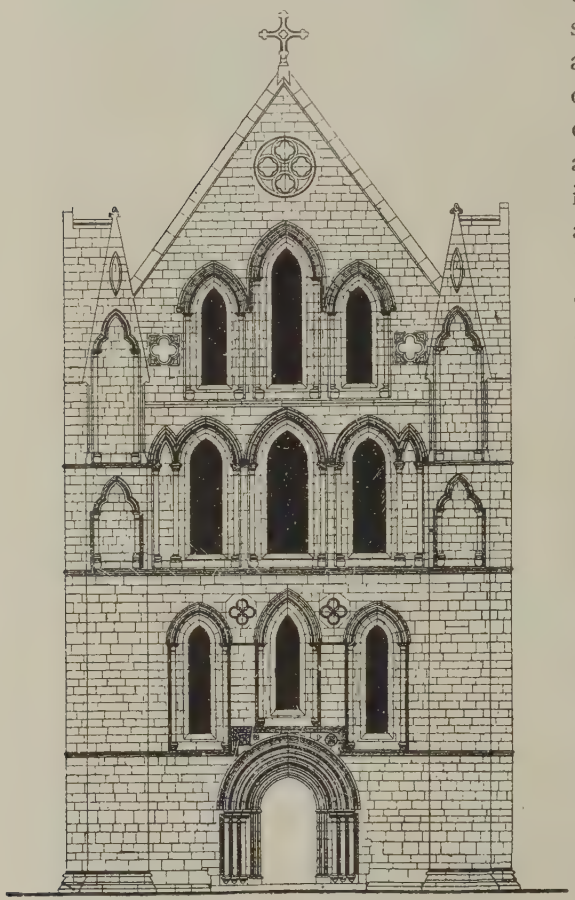
Winchester Cathedral: North Transept in 1836

aisle wall was built up to a much higher level, and was pierced with windows lighting the triforium chamber, and thus, indirectly, lighting the nave. That the

J. F. H. Peterborough : North Transept

object of providing this additional midzone tier of windows was not to light the triforium chamber itself is proved by the fact that in many cases these windowed chambers were never used and never could be used, the aisle vaults being

unfloored to this day; *e.g.*, in Lincoln minster.[1] This design came from Normandy, where it is seen fully developed in St. Stephen's, Caen (567), and Cérisy-la-Forêt. This addition of a range of side windows midway between those of the aisle and clerestory had a profound influence on the internal design of the Norman churches. In the first place, to get full advantage of the new source of light, it was desirable that the front of the triforium chamber should be blocked as little as possible by arcading. In fact, from the practical point of view, the best bay design was that in which each bay of the triforium chamber had no arcading at all in front of it, but opened into the church by one big cavernous arch, as wide as the pier-arch of the ground story below. This was and is the very design of the bays of the 1050 nave of the Abbaye-aux-hommes at Caen (385). So it is at Norwich, which has an interior of great nobility; at Dunstable priory, where the clerestory has been removed; in the choir and nave of St. Alban's; in Southwell nave (743), where an arcade was projected but was never carried out; in Blyth priory, Notts. (418); in Dunfermline priory; in Carlisle cathedral; in Wymondham and Binham abbeys, Norfolk; in Kirkwall cathedral; and originally in Gloucester choir; among the latest examples are the triforium, half Gothic, of the north side of Selby nave (742) and that of Worksop.



J. T. Hedon: Yorkshire

Some, however, were unwilling to sacrifice the arcade in front of the triforium chamber—the most beautiful feature in a mediæval minster. But where the arcade was retained, it was desirable that it should be as light and open as possible, to allow all light possible to pass through. And in many designs this was recognised, *e.g.*, in the nave of Cérisy-la-Forêt, in Peterborough (778), and above all, in Ely (573). Not infrequently, however, the triforium

[1] In some cases, chiefly in the chancel, the triforium chamber was floored and provided with spacious stairs as well as with windows; at Gloucester the occurrence of piscinæ as well as the *mensa* of an altar *in situ* proves that the triforium chamber of the chancel and transepts was in ritualistic use; the same, no doubt, was intended to be the case at Westminster; see the writer's *Westminster Abbey*, 100.

arcade was low and blocked by massive arcading with solid spandrels, *e.g.*, in the eleventh-century transept of Winchester (61) and at Durham (746), reducing very considerably the amount of light from the upper windows of the aisles. A beautiful Gothic treatment of this design survives at Ely both in the bays of the retro-choir (574) and in those of the choir (575).[1]

Unfortunately these upper aisle windows were open to more than one objection. In the first place, the expense of constructing the church was very much increased; for the whole of the aisle walls had to be raised to a considerably greater height all round the cathedral, perhaps for as much as a length of 1,000 ft. Secondly, the aisles, thus unduly raised, tended to curtail the height of the clerestory. Thirdly, if the upper aisle window was filled with stained glass, the glass could not be seen from the interior of the church. This objection was fatal. For by this time stained glass had come into great favour. To build a range of stained glass windows at the *back* of the triforium chamber out of sight, was ridiculous. So thought the English; and in disgust they abolished the triforium window altogether. The choir of Ely, begun *c.* 1322, is the last example with upper aisle window; nor would it have been employed here but that it was desired to adhere to the proportions of the adjoining thirteenth-century presbytery, which had this arrangement (575).

F. B. Romsey: West Front

In yet another fashion the employment of the upper aisle window influenced the internal elevation; it affected the proportions of the interior. Where the aisle wall was not raised for the insertion of upper windows, the triforium chamber, since its height was regulated by the distance between the triforium floor and the junction of the aisle roof with the nave wall, would normally be low and have normally a low arcade. But obviously, if the aisle wall were considerably raised, the aisle roof would impinge on the nave wall higher up, and thus the arcade of the triforium chamber would be a lofty one; it is thus that it comes about that such triforium arcades as those of the naves of Norwich and Peterborough and Ely are so lofty and important; in such a design the triforium stage is enlarged so much that the three stories of the interior come to be almost, if not quite, equal in height.

[1] In the retro-choir the design has been remodelled externally, except in two bays.

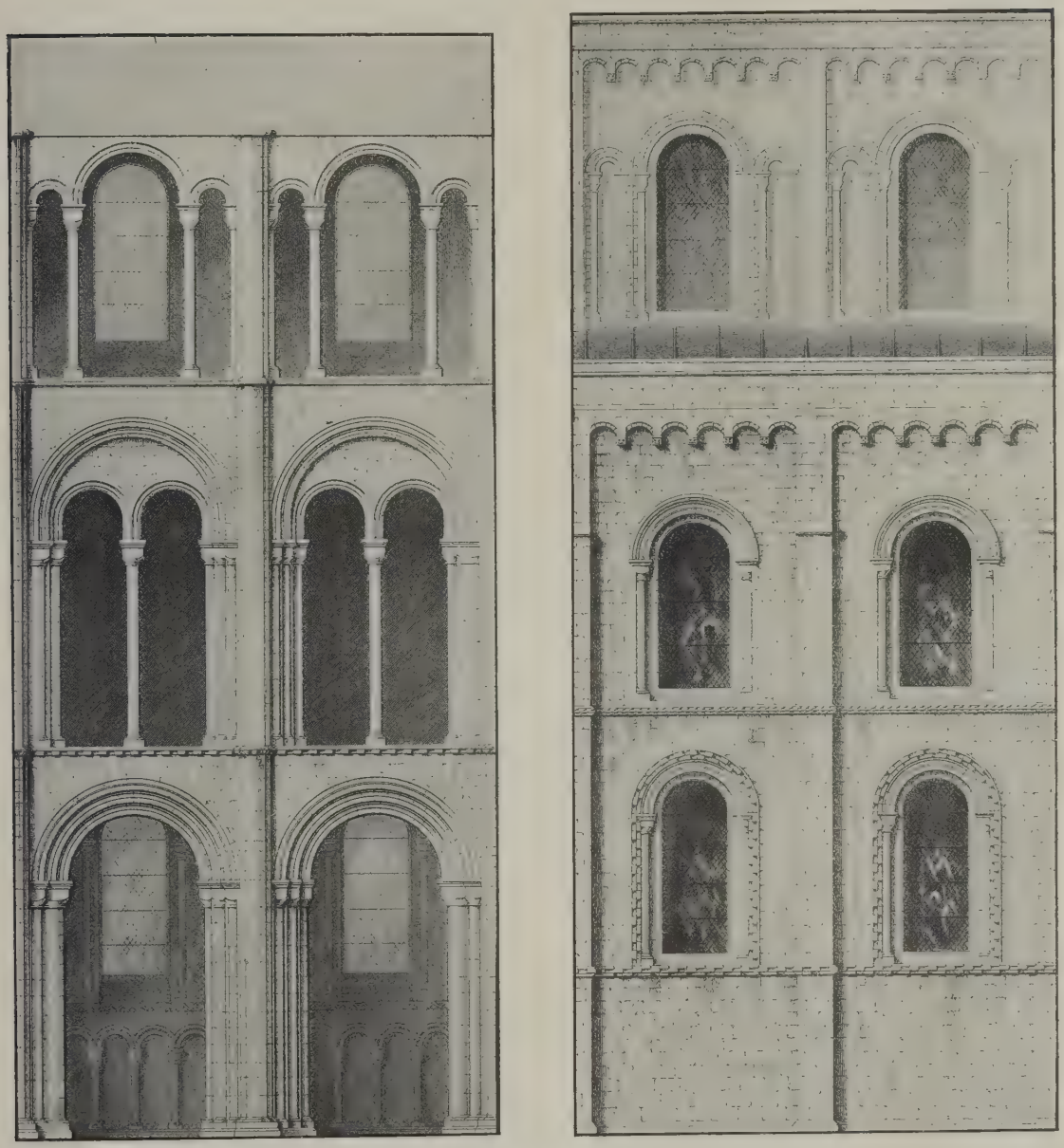
ORIGIN OF TRACERIED WINDOWS

It has been pointed out above that normally our early windows, whether round-headed or pointed, were kept narrow, no doubt to give security to the glass, which originally must have been very costly. Where, as in Canterbury choir, the windows were broad, stout iron uprights and cross bars had to be provided to stay the glass against wind pressure. The characteristic English lancet, however, was narrow and elegant, and soon fell into beautiful combinations of two, three, four, five, six, or seven lancets. Sometimes these groups were uniform in height, as in the York Five Sisters, sometimes they were graduated, as in the gable above (157); sometimes a uniform quartet was superposed on another uniform quartet, as in Southwell choir; often a graduated was superposed on a uniform group, as in the transepts of York, Lincoln, Beverley, Hedon. So charming were these combinations that we lingered over them for a whole generation after the lancet window had been superseded in France.

R. W. Canterbury Nave

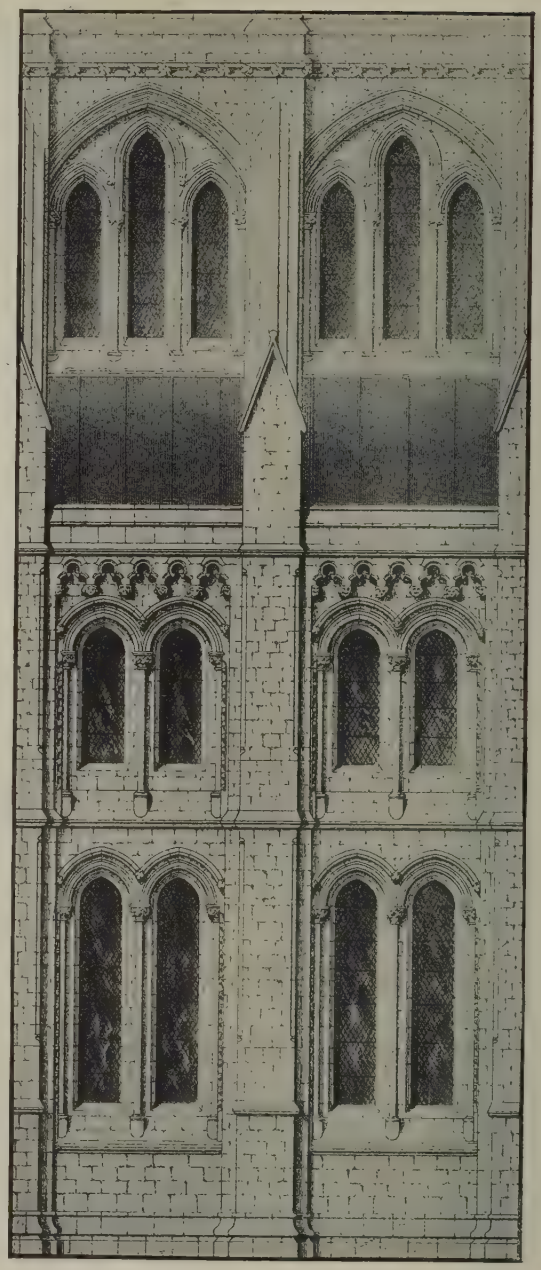
In both countries, however, the desire for better lighting demanded larger windows. But even with the aid of iron uprights and cross bars, large leaded sheets of glass could hardly be fixed securely. Moreover, it was desirable to replace such a dangerous material as iron by stone. At first, and for a long time, the *transom* or cross bar was not copied; it was found enough to retain iron cross bars; only the uprights, what are termed "*mullions*" or "*monials*," being constructed in stone. In this way, even without transoms, it became feasible to construct windows of very large size, such as the west window of York (639). Nor was there to be stay or stop, except so far as the exigencies of construction demanded, till the eastern, western, northern, and southern façades, and the flanks of the nave, transepts, and chancel became practically continuous sheets of glass. Nothing remained but to make the roof glass also; for this, however, we had to wait till the Crystal Palace.

The earliest type of windows—common to the early Christian churches and Byzantine buildings, *e.g.*, the cathedral baptistery at Ravenna, was an oblong



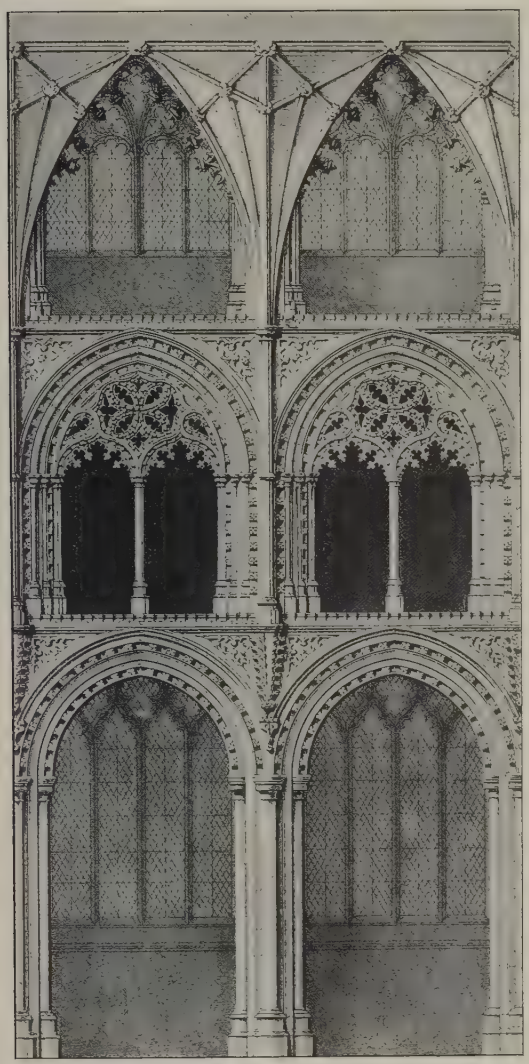
E. S.

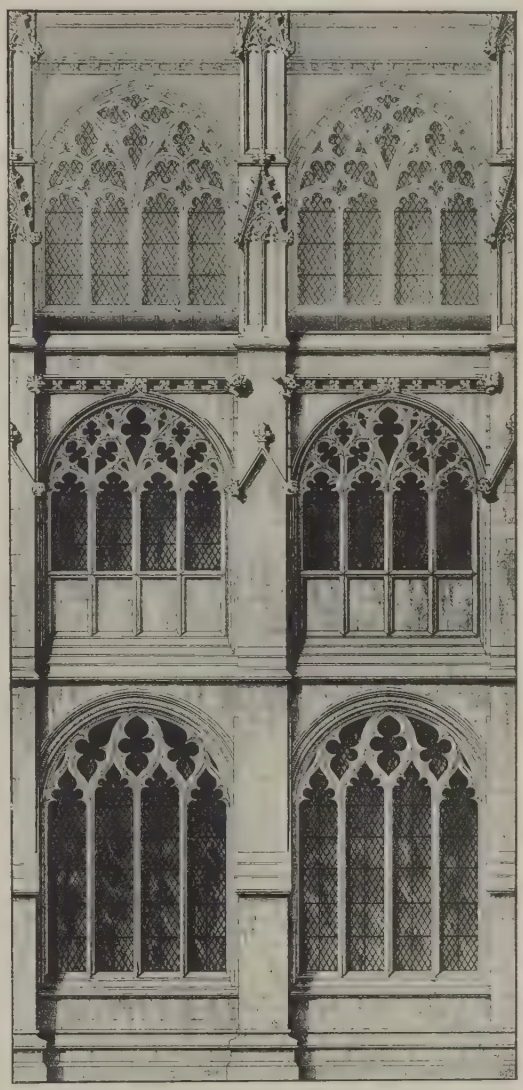
Ely Cathedral: Nave



E. S.

Ely Cathedral: Retro-choir





E. S. Ely Cathedral: the Choir

opening with a semicircular head. This is the most usual type also in Anglo-Saxon work (where, however, the jambs sometimes incline inwards towards the head), as well as in the Anglo-Norman churches, *e.g.*, Ely (562). In both there also occurs a round-headed window with a central baluster, which is usually set near the outer face of the wall. Such windows here and there occur in the Lincoln district, *e.g.*, Boothby Pagnell, till well into the Gothic period. They were inserted almost wholly in belfries—those of the Anglo-Saxon nave of Worth, Sussex, are an exception—and, owing to the baluster being ill suited for glazing, they were ultimately given up.

F. H. C. St. Mary, Shrewsbury

The history of the traceried window starts in the triforium. From the first arcades were common in the Norman triforia, *e.g.*, Peterborough (794); each bay having a couple of small arches set beneath a large containing arch, the spandrels between the two being left solid; *e.g.*, in the transepts of Winchester (61) and the choir of Hereford, both set out soon after 1079 (744). But in the choir of Peterborough, set out *c.* 1118, in two bays the spandrels of the triforium arcade are pierced with plate tracery (778); another example occurs in the nave of Malton, Yorkshire. The idea died away, however, and the spandrels again became solid till the second half of the twelfth century, when the plate tracery treatment appears in the triforia of the choir and transept of Ripon (782) and the nave of Selby, and reappears later at Lincoln (584). By the beginning of the thirteenth century it had become usual to design triforium arcades of extraordinary richness and complexity, and with plate tracery. All this time, however, and long after, window design remained absolutely unaffected by the development of the triforium arcade; it is amazing to see the contrast at Whitby, Rievaulx, and the south transept of York minster, between the absolutely plain clerestory lancets and the superb triforium arcading in immediate juxtaposition below.[1] What could be more obvious than to transfer the triforium arcade to the clerestory, merely grooving its

[1] This applies especially to the design of the triforium bay next to the crossing at Rievaulx, which appears also at Whitby, York transept, and Bridlington (748).

shafts and jambs for the reception of glass? Apparently it was not obvious. The builders preferred to let the clerestory window alone, as at Rievaulx (748), plastering the wall on either side of it with arcading so as to distract attention from its plainness. The triforium of Whitby was set out *c.* 1200;[1] it was not till a Frenchman shewed the way at Westminster in 1245 that a traceried triforium was matched with a traceried clerestory (391). After this the clerestory design was often little more than a repeat of that of the triforium, *e.g.*, in Lincoln retro-

F. B. Tintern Refectory

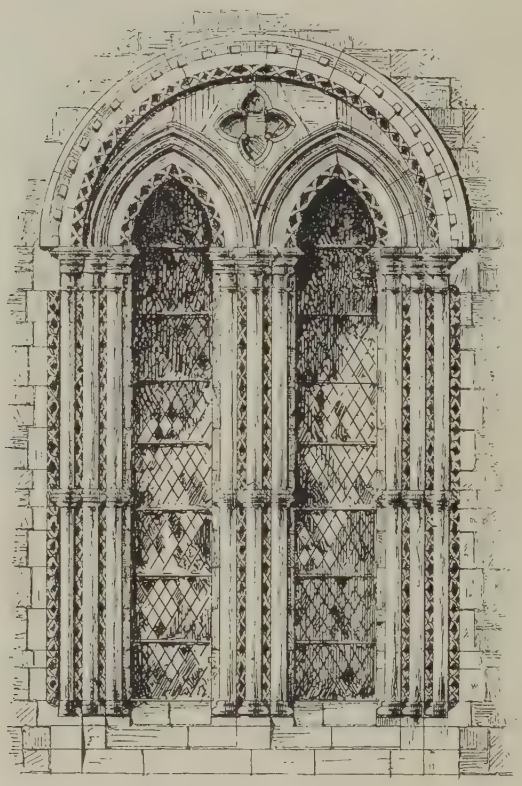
F. B. Chichester: North Aisle of Nave

choir (585). Westminster also it was that taught the Englishman that the tracery which was suitable in the triforium and clerestory was also suitable for the windows of aisles.[2]

[1] According to Sir Gilbert Scott; it looks rather later.

[2] In details the early French tracery seems to have had little influence on our own. The typical geometrical window in France is one containing two or four broad lower lights; in England it is one containing *three* narrow lower lights; Westminster, being of French design, adheres to the former system throughout. The triple-light window of England is plainly indigenous; being based on our triplets of narrow untraceried lancets, such as those of the clerestories of Ely presbytery and Salisbury nave. Windows of three lights are rare in France before the thirteenth century.

As regards our façades, however, it is not so certain that the early traceried windows in them were due to the precedent of France, where windows with bar tracery had been put up as early as 1210, and with plate tracery earlier still. For wherever two or more lancets were set under a common dripstone, as in the aisle of Carlisle (561), the west front of Romsey (571), the belfry of Sibsey, Lincolnshire (578), the refectory of Tintern (577), in each case there was left a plain spandrel; it needed no foreign inspiration to suggest that this would look better pierced. Such windows, on a small scale indeed, occur long before Westminster was begun. A window once in St. Maurice, York, *c.* 1160, is now in the Hospitium in the Museum gardens; another remains in the porch of St. Mary, Shrewsbury, *c.* 1180 (576); others in the Bishop's halls at Lincoln and Wells, 1200-1234, and in the hall of Winchester castle, finished in 1234.[1] In façades the earliest large windows with tracery are the east window of Netley abbey and the west windows of Valle Crucis abbey and Binham priory. Netley abbey was begun in 1239, and the chancel would be taken in hand first; but the east window has evidently replaced an earlier one, whether completed or unfinished one cannot tell.[2] Valle Crucis abbey is said to have been founded *c.* 1200; the nave may well have been completed within thirty or forty years (598). Binham west front is recorded to have been rebuilt between 1226 and 1244; here also the central window has replaced an early one, no doubt a group of lancets: but the side windows of the façade have tracery which is original, and we may consequently infer that the alteration of the design of the central window was decided on when or before the side windows were inserted, *i.e.*, not later than 1244 (595).[3] From the central Binham window it is but a short step to the still larger east window of the Lincoln retro-choir, which differs from it only in minor details; this window was probably set out not very long after 1256 (587).



J. H. Sibsey, Lincolnshire

[1] Illustrated in Rickman, 165.

[2] As the windows of Netley aisles are lancets, it is probable that originally the east window was a triplet of lancets; the base of a jamb shaft of the southern lancet may still be seen in the wall.

[3] A side window is illustrated in *Gothic Architecture in England*, 470.

It is probable that circular windows with tracery were designed earlier than windows of oblong form. Circular windows were at all times common in gables, and even in the twelfth century designs occur of great richness; the favourite design being one in which a small centre or "eye" is connected with the circumference of the circle by radiating shafts and arches, *e.g.*, Patrixbourne, Kent. Good thirteenth-century examples occur in the western façade of Peterborough (670) and the façades of the transepts of York and Beverley minster (66). It was only necessary to set such a circle on two or more lancets, and the idea of the traceried window would force itself on the mind; early examples are seen in the transept chapels of Fountains and Kirkstall (580) and in the west front of Byland (671). There can indeed be little doubt that at Chartres and Laon the idea of the traceried window suggested itself from the more or less fortuitous superposition of a traceried circular window of plate tracery resting on a tier of lancets. It is the influence probably of these early designs in plate tracery which explains the great prominence given to a large circle as centrepiece in early French examples of bar tracery;[1] *e.g.*, the windows of Reims, Amiens, and Westminster. The difference between plate and bar tracery is well seen in the northern chapels of Chichester nave, where the eastern chapel belongs to the second, and the western chapels to the third quarter of the thirteenth century (577). An archaic example of both varieties of tracery is seen in the east window of St. Decuman's, Somerset. In the refectory of Tintern abbey, the windows have trefoiled lower lights, carrying a plate-tracery circle (577).

Etton, Northants

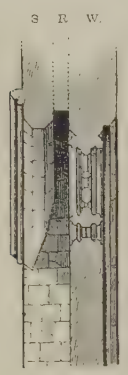
E. S. Stone, Kent

The position of the glass in mediæval windows varied very considerably. The early windows, from the eleventh to the middle of the thirteenth century, were small and the walls thick. To make the most, therefore, of the light from these small openings, they were widely splayed internally, *e.g.*, at Bottesford (561, 582). At that

[1] The difference between plate and bar tracery should be borne in mind. If a small, circular opening be required, it may be scooped out of a single block, as at Lillington (562), or out of two, as at Shrewsbury (576); but if the opening be fairly large, some four slabs may be employed, out of each a quarter circle being scooped; when put together, the four slabs will contain a circular opening; the remainder of each slab being left solid: this is plate tracery. But if the remainder of each slab also is cut away, so as to leave four curved bars of stone, which being put together form a circle, this is bar tracery. Other geometrical forms are obtained in similar fashion. See the bar tracery of Edlesborough (592) and Carlisle (675).

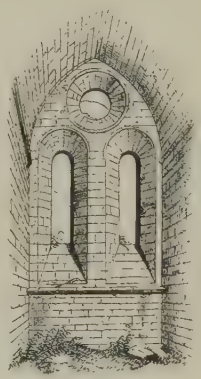
time glass was scarce and dear; and if it were set near the outside face of the wall, a smaller amount of it would be required; so it was customary for the glass to be flush or almost flush with the wall, leaving a very large internal splay. To this there were two objections; there was the objection to the flatness of the external wall face with glass and walling all in one plane or nearly so; and the practical objection that the glass was exposed to the drip of the walling above. Therefore, as glass became cheaper, it was set further away from the outer surface of the wall, or even centrally; thus at once protecting it from drip and providing deep shadows in the outer walling.

This change had a marked influence on window design. In the simplest type of lancet window with a big internal splay, sometimes all that was done to improve the appearance of the latter was to paint it with scrollwork, figures of saints, etc. But the upper part of such a splay was useless: it was not desired to send the light up



E. S.

Arreton, Isle of Wight



Kirkstall

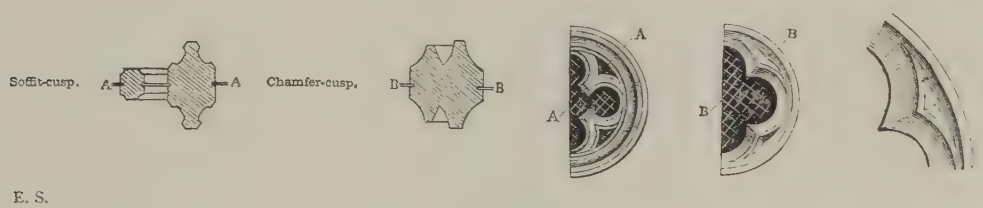
into the church, but forward and down. Therefore it was common to lower the head of the splay, running an arch across it, *e.g.*, at Arreton, Isle of Wight (580). Such a window had three parts; the external arch containing the glass, the internal or "rear" or "scoinson" arch, and the space between the external and the internal arches.[1] This space was hidden from view by the rear arch and so was usually left plain. But much attention was paid to the design of the rear arch, which was in full view from the interior of the church. It may be chamfered as at Etton, it may be molded as at Arreton and Stone, it may be cusped, as in a window in Gloucester triforium (582); also shafts may be added in the jambs to support the ends of the arch, as at Stone (579). Or a detached lancet arcade may be built at the rear, with charming effect, as in Pershore (566), Oxford Chapter house, Ashbourne, Derbyshire (565), the Elder Lady chapel at Bristol (75), Lincoln choir (584) and nave (585).

[1] In the section of the Arreton window on the left of the page, the arch containing the tracery and glass is on the right, the rear or scoinson arch on the left.

At Sutton St. Mary, Lincolnshire, an inner arcade is added to strengthen the belfry windows (583). Or the tracery of the window may be repeated in the rear arch, as in the Lincoln retro-choir (585): or, best of all, tracery of a different pattern may be employed, as in Melrose abbey (586). But charming as was the addition of this inner arcade, it impaired the lighting, and soon went out of fashion.

GEOMETRICAL TRACERY

The normal traceried window consists of two parts: the lower part, which is the larger, contains the vertical mullions, which at first were seldom strengthened with horizontal transoms, except in domestic work;[1] the upper part, the arched portion of the window, contains the collection of openings or bars which is called *tracery*. Usually the heads of the lower lights spring at the same level as the containing arch of the window, so that all the tracery is above the spring of this arch; occasionally, however, the spring of the arched heads of the lower lights is much lower, as at



E. S.

Billingborough (603) and Fleet (602), Lincolnshire; Malvern (663) and Middleton (662), Suffolk; this is called *drop tracery*. In the east window of Dorchester priory church, Oxon., the whole window is occupied with tracery down to the sill (260); so also the Jesse window (680) in the same church.

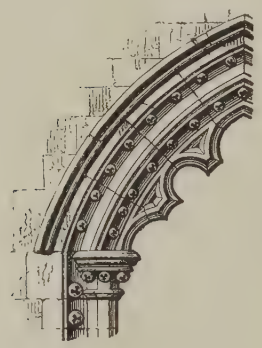
In all plate tracery, and in the early forms of bar tracery, only simple geometrical curves are employed, *i.e.*, from *c.* 1240 to *c.* 1315; after the latter date compound curves become common. In the earliest windows of the period the only geometrical form employed was the circle; *e.g.*, in the nave of Tintern (755) and Lincoln retro-choir (784). The circle was almost always cusped;[2] the window illustrated from Grantham is a possible exception (589). Tracery in which only cusped circles occur is in England usually of the second half of the thirteenth century; in France it still remained the predominant type till well on in the fourteenth century, or even later, *e.g.*, in Notre Dame de l'Epine, near Chalons-sur-Marne, begun in 1419; indeed the French exhibited little interest in the development of window tracery till the fifteenth century; the English tracery up

[1] It was often convenient to have a shutter at the bottom of the window; this necessitated a transom.

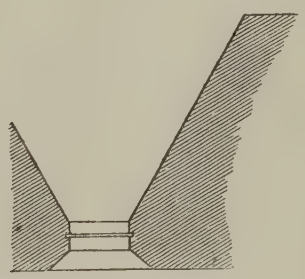
[2] For cusping see p. 587.

to that date is as much more diversified and interesting than that of France, as after that date it is more monotonous and uninteresting.[1]

The earliest forms of geometrical tracery have a cusped circle; if the circle is filled up with something other than cusps, *e.g.*, at Temple Balsall (601) and Lincoln cloister (599), it is not of the early period. The later type of geometrical tracery had its greatest vogue from *c.* 1280 to *c.* 1315, though examples may be found both before and after those dates. In this either other forms exist side by side with the circle, as at St. Etheldreda, Holborn (597), or are substituted for it; such as trefoils, quatrefoils, etc. A long-lobed pointed trefoil now comes into use; *e.g.*, in the Tintern west window, where there is a row of seven (596); and at Broughton (611), Eastleach Martin, Gloucester (610), and Roxby (608); the tracery of the windows of the south aisle of Gloucester nave is wholly made up of long-lobed pointed trefoils and "daggers" (596).



E. S. Gloucester



Bottesford

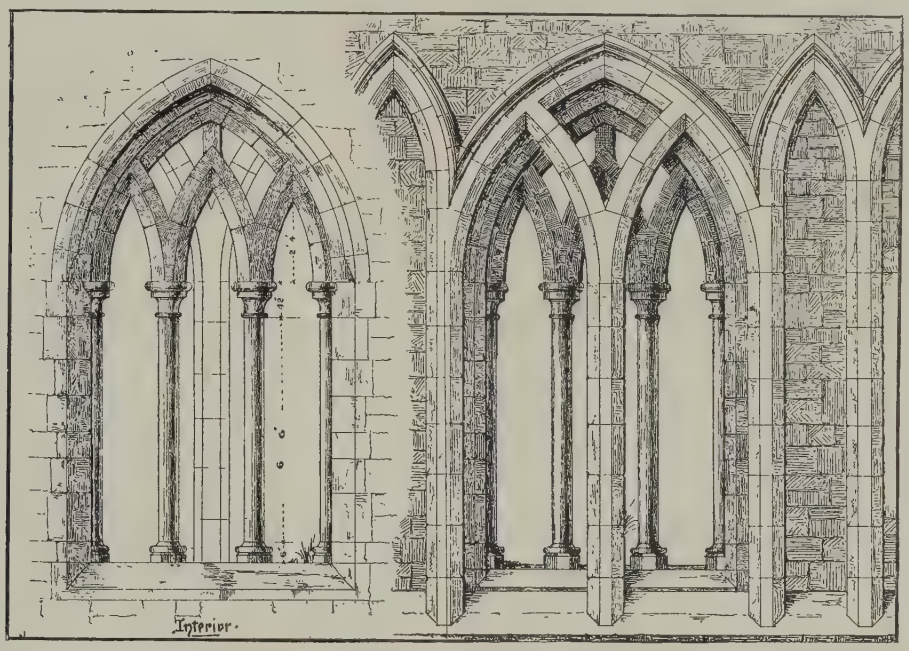
Of the later geometrical tracery two varieties may be distinguished; the one *with* centrepieces, the other *without*. Of centrepieces, by far the most common is the circle. This circle may be treated in different ways; it may be filled entirely with small trefoils, quatrefoils, etc., as in Lincoln cloister (599), Temple Balsall (601), Exeter (605), and Chester (606), or it may be wheel-shaped, or a cross may be inserted as in some of the Exeter windows. Or the centrepiece may be a trefoil, as at Rippingale (603), Peterborough (569), and Malmesbury (394), or a quatrefoil or cinquefoil, set upright, as at Exeter (605) and Hereford (607); or diagonally, as at Chester (606) and in Kentish tracery, *e.g.*, Billingborough, Lincolnshire (604); other forms are illustrated. Sometimes each division of the window has its own centrepiece, *e.g.*, in the Exeter clerestory (605), Rippingale (603), Fleet (602), Broughton, Lincolnshire (611), Chester cathedral (606), Roxby, Lincolnshire (608), and Tintern (596).

Tracery *without* centrepieces admitted of still greater diversity of treatment. *A.* One of the simplest is that in which the arches of the lower lights are continued up to the window arch. Sometimes the intersecting curves thus produced are uncusped; *e.g.*, at Barholme, Lincolnshire (596), the Grantham west window (609), and the clerestory of Wells retro-choir (763); more often they are cusped, as at

[1] Other examples are shewn in the nave of Bridlington (775) and in the Chapter house of Westminster (333).

Hanslope, Bucks. (685); or the interstices may be filled with trefoils and quatrefoils, as at Eastleach Martin (610) and Broughton (611).

B. Another common form is a group of graduated lancets, usually three or five, rising up to the window arch. Sometimes they are without cusps, *e.g.*, in the presbytery of Eggleston abbey (613) and the east end of Isle Abbotts, Somerset (612); but many charming variants occur, *e.g.*, at Barnack (616), the vestibule of the Chapter house at Westminster (612), and in Chichester Lady chapel (615). This type of window has a wide range of date; the choir of St. Albans having been begun *c.* 1257, while the chancel of Bottisham is *c.* 1320. It is particularly



J. H. Sutton St. Mary, Lincolnshire

common in the West of England; *e.g.*, in Wimborne minster (614) and in Milton Abbey, Dorset, and Ottery St. Mary, Devon; in the last of these the fourteenth-century east window has eight lights, the west window has five (28, 8).[1]

In a variant of this the main lights are not pointed, but trefoiled; *e.g.*, Eastleach Martin, Gloucestershire (610), where cinquefoils are employed to fill in the apertures between the lights.

C. Another group has the mullions continued vertically up to the window head; of these the most exceptional is the east window of Eggleston abbey, Yorkshire, which has four mullions and five lights, and neither cusping nor tracery. A cusped

[1] Bishop Grandisson began the rebuilding of Ottery St. Mary *c.* 1337.

and traceried example is illustrated from Fleet, Lincolnshire (602). The east window of Barnack, Northants, combines both the last two types, having both graduated lancets and vertical bars (616).

D. Another group has tracery made up of trefoils, quatrefoils, and other geometrical figures. Sometimes only one, sometimes two or three patterns are employed, *e.g.*, at Rippingale, Lincolnshire (603), and Meysey Hampton, Gloucester (608), and in the windows of the south aisle of the nave of Gloucester cathedral (596), in which the tracery is studded with ballflower (1318-1329). Large windows of this type, with a multitude of small patterns, occur in the Lady chapels of Lichfield and Wells (73); the latter was finished before 1326; the former was begun in 1310, and was probably finished soon after 1326; the tracery was probably designed in the early part of this period.

S. S. Lincoln Choir

A very rich set of windows has the jambs, window arch, mullions, and tracery studded with ballflower, both internally and externally; the ballflower ornament is most common in the reign of Edward II. (1307-1327), but occurs both before and after that date. Some windows, *e.g.*, those of the south aisle of Gloucester nave (596), contain as many as 1,400 ballflowers; and where each is cut in the solid, such a window must have been enormously expensive.[1] These windows are particularly common in the West of England; *e.g.*, St. Catherine's chapel, Ledbury (604),[2] the south aisle of Leominster (590); Ludlow (600); Badgeworth, Gloucester, and the Mayor's chapel at Bristol.[3] The above may be regarded as the chief types of windows with and without centrepieces, but they by no means exhaust the diversity of the geometrical tracery of our English windows.

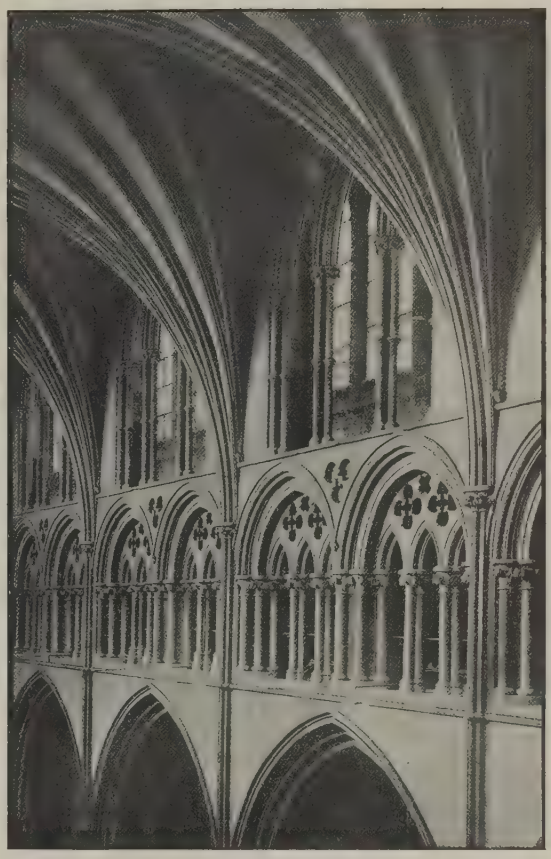
[1] At Grantham (609) the ballflowers in the west window are, at any rate for the most part, cut separately and dowelled into the stonework.—A. H. T.

[2] St. Catherine's chapel in Ledbury church was built in honour of Catherine Audley, who lived here as an anchoress *temp.* Edward II.

[3] In design these windows may have tracery of various types described above; it is in their ornament that they are peculiar.

If a man were asked to describe a skeleton, he would not begin with the skull and then pass on unsystematically to legs, toes, chin, backbone, etc., but would first give the main members; the backbone with its ribs, the skull, arms, legs, and so on. In similar fashion, to understand a large traceried window, one must begin by picking out the chief members of the skeleton. Thus at Raunds (588) the main

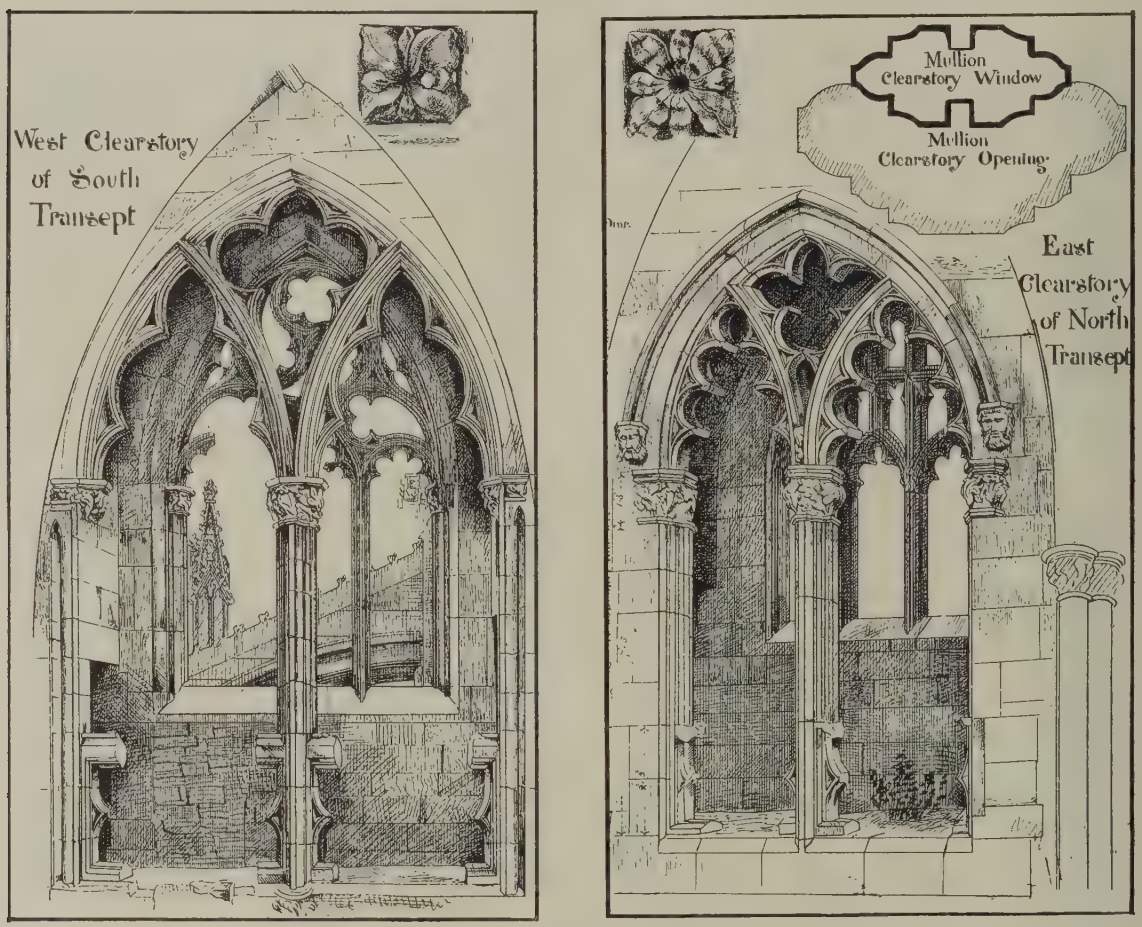
S. S. Lincoln Retro-choir



S. S. Lincoln Nave

structure consists of two pointed arches supporting a large circle; and it is to be noted that these pointed arches are partly *detached* from the main arch of the window. Each of these pointed arches contains three lower lights, of which the central is somewhat the largest, and these carry two circles which support another circle. The six lower lights have pointed heads and have a single cusp on each side; this produces three *foils* or *lobes*; they are therefore termed pointed *trifoliated* arches. In Mr Sharpe's volume on *Decorated Windows* all the seven circles are shewn with-

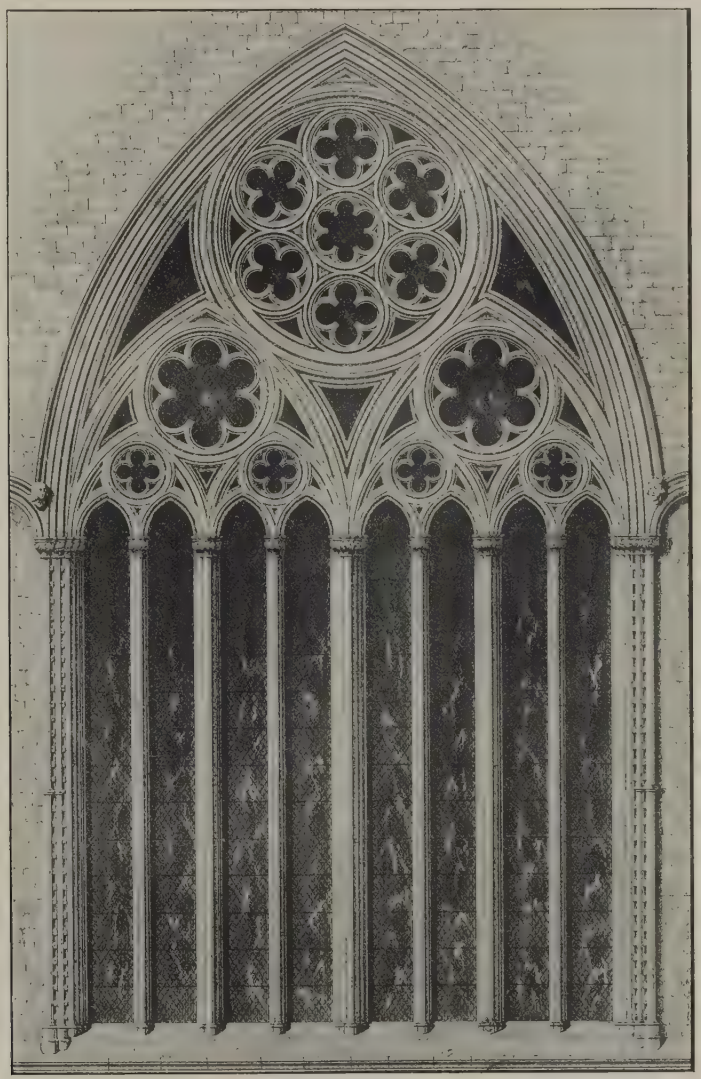
out cusps; but cusps belonging to them have been found in the church, and are now replaced. It is very rare to find uncusped circles in large windows, though an instance occurs at Grantham, where till lately the circles had modern cusps of iron (589). In early windows, *e.g.*, those of Westminster abbey, the cusps were not


West Clearstory of South Transept
Mullion Clearstory Window
Mullion Clearstory Opening
East Clearstory of North Transept

W. C. Melrose Abbey

carved out of the solid; merely a groove was cut inside the bars of which the circle consisted, and in this groove the cusps were cemented; naturally, under stress of rain and frost, many in course of time worked loose and fell out; others were removed by post-Reformation glaziers to make the glazing easier. In late geometrical and in all later tracery it was usual to cut the cusps out of the solid. Of these there were two varieties (581). The earlier are termed *soffit cusps*, *e.g.*, in the window of

Lincoln retro-choir; the later are termed *chamfer cusps*; exceptions, however, occur in both.[1] The earliest cusps are quite plain; late ones are usually molded. The



E. S. Lincoln Retro-choir

[1] Both soffit cusps and cusps on the chamfer plane (the latter is an unfortunate term) spring from the centre of the bar, and the latter do not start from the chamfer plane. The soffit cusp is a thin cusp starting only from the centre of the mullion of the containing figure, while the chamfer cusp is thicker, but still placed centrally; but being thinner than the mullion, its face is somewhat inward from the face of the

early ones generally end in a point (592) or a blunt end (587) or a knob; later ones are often foliated (600). In early work the lobes of a cusped circle are them-

E. S. Raunds, Northants

selves parts of circles, and all the parts of trefoils, quatrefoils, etc., are parts of

mullion, so that whether the mullion be chamfered or molded otherwise, the cusp starts on both faces from *within* the outermost molding on both faces, *i.e.*, from the outermost molding of its own plane.—R. A. D.

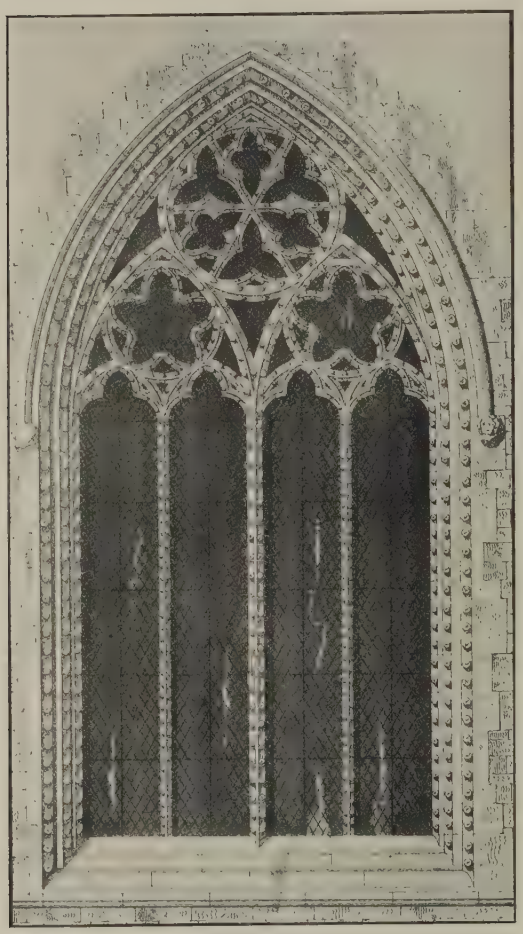
equal circles disposed in a ring; *e.g.*,[1] in Lincoln retro-choir (587). In the rich work

E. S. Grantham: West Window of North Aisle

[1] In early work the lobes of the foliations are formed of parts of contiguous but separate circles, so much so that, continuing the sweep of the circle, the cusps often begin to spread out again as in the restored cusps of Raunds; but in the later ones they are formed of parts of contiguous but intersecting circles: compare the lobes and cusps of the east windows of Lincoln and St. Decuman's, Somerset, with the lobes

of the fourteenth century the cusps themselves were often cusped; *i.e.*, there is *compound cusping* producing *double foliation*; *e.g.*, Roxby (608) and Edingthorpe (632).[1]

As a rule, the main skeleton of large windows is distinguished from minor parts of the tracery by the fact that it is more massive and projects further to



E. S. Leominster

E. S. Wells Chapter House

the front. At Ford, Sussex (630), no such distinction exists; such a window is

and cusps of the east windows of Edlesborough, Bucks.; in the former the circles contained by the lobes form rings of separate circles, while the rings formed in the latter case are made up of overlapping or intersecting circles.—R. A. D.

[1] In the following remarks the details of window tracery are illustrated from Flowing as well as Geometrical tracery; *e.g.*, Edingthorpe, Ford, Ringstead.

said to have only one order of tracery. But in the Raunds window (588) the main skeleton—the two great arches and the greater circle are evidently in a plane projecting further forward than the lower lights and the six small circles; thus the tracery and mullions are in two different planes and are said to have two orders of moldings.

E. S. Wellingborough

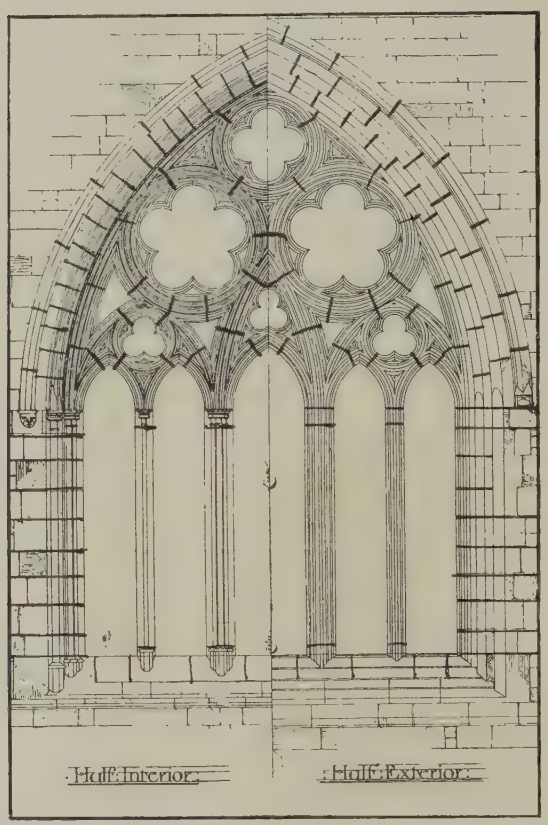
In speaking of the orders of moldings in a window, it is important to remember that the window arch also has orders of moldings and that these are distinct from those of the mullions and tracery; these two sets of moldings in a window must not be confused. The foliation may be single or double; the mullions and tracery may have one, two, very rarely three orders; the window arch usually has one or two orders of moldings, but has sometimes three, and in the east window of Netley, by exception, four orders.[1]

The following windows should be compared, as illustrating clearly the difference of orders (1) in the window arch, (2) in the mullions and tracery. In small windows, *e.g.*, Ford (630), the window arch naturally has but one order of moldings; this is sometimes so also in elaborate windows, *e.g.*, as the jointing of the arches shews, in the four-light windows of Whitby (594); so also in the four-light windows of the north aisle of Sleaford (620) and Cottingham (623); and the five-light windows of Hull aisle (624) and Ringstead (622).[2] Where a window arch has two or three orders, they may be detected by examining the joints; for there will be found to be two or three sets of joints

[1] Illustrated in *Gothic Architecture in England*, 699.

[2] It might be supposed that the dripstone of each of the above windows forms a second order; this is not so; simply because the dripstone is not part of the arch; it is not built through the wall, but only a few inches deep in the outer face of it.

not corresponding. This is seen clearly at Easby (593) where there are a narrow inner order, a broad outer order and a dripstone, all with different jointing: so there is in the exterior of the window at Edlesborough, Bucks. (592). At Howden (618) there is a broad inner order, a narrow outer order, and a dripstone. At Wells (590) there is a narrow inner order containing ballflower, a broad outer order, and a crocketed ogee dripstone: the disposition of the orders is similar in the Sleaford transept (621), but here the dripstone is pointed. The great east window of Lincoln minster is 34 ft. wide, and therefore requires a very broad arch; this is built in three orders (587).



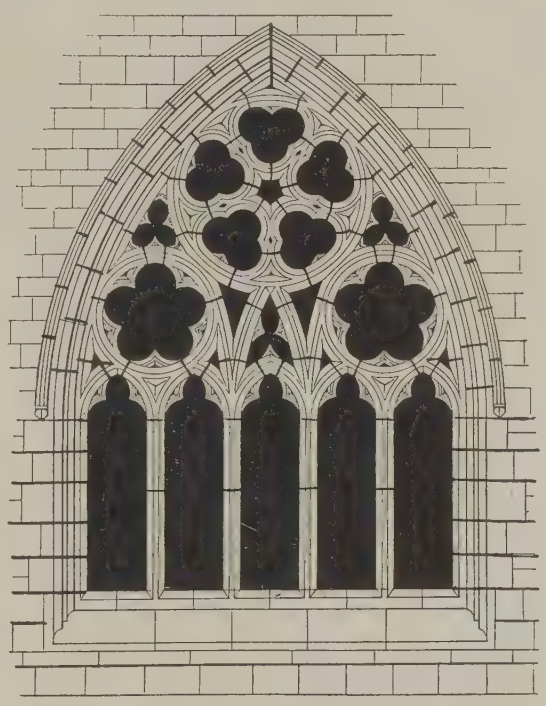
R. J. W. Edlesborough, Bucks.

Now turn to the mullions and to the tracery bars which continue the mullions up to the window arch. Very often the variation in the diameter of the mullions shews clearly the number of orders in the tracery. In small windows, *e.g.*, Billingborough (604) and Ford (630), the mullions are all alike and the tracery of one order only; this is so sometimes in large windows, *e.g.*, in the Easby refectory (593) and in the fine window of five lights at Ringstead (622). In large windows the central mullion is often more massive than the side mullions and the tracery is of two orders; *e.g.*, at Whitby (594) and Edlesborough (592). In Sleaford transept (621) there are five mullions, of which two have triple shafts, and three have single shafts; the tracery is of two orders. In the eight-light window at Lincoln one mullion has five shafts, two have three, and four have single shafts; the tracery is of three orders (587). On the other hand the mullions may be all alike, and yet there may be more than one order of moldings in the tracery. Thus at Howden (618) and Wellingborough (591) there is no difference in the mullions, but there are two orders of moldings in the tracery; at Wells (590) there are two orders in the mullions but three in the tracery.

As for the cusps, they have seldom more than one order of moldings. When two orders do occur, as at Roxby (608), Edingthorpe (632), Wellingborough (591), and

Lincoln screen (533) the effect is very rich; but such elaboration of minute detail is less suitable for stone than woodwork, in which it is frequent, *e.g.*, in stalls.[1] As applied to cusping, the term "order" is confusing, and it is better not to employ it; when a cusp is in two orders, it is better to say that there is *double foliation.* Thus the term "order," as applied to windows, will be confined exclusively to the moldings of (1) the window arch; (2) the mullions; (3) the tracery.

It will be noted that in the earlier mullions there was a tendency to design them on the lines of the shafted piers of the thirteenth century; thus in the great Lincoln window the mullions have one, three, or five shafts (587). The result was to produce a thick mullion, which was not what was wanted. To withstand wind pressure, depth rather than thickness was required; therefore the tendency was more and more to make the mullions thin and deep, as may be seen by comparing the mullions of Lincoln (*c.* 1280) or Guisborough (*c.* 1310) with those of Heckington (*c.* 1340) (619) and Melrose (586).



J. F. H. Easby Abbey: Refectory

ANALYSIS OF WINDOWS WITH GEOMETRICAL TRACERY

Lincoln Minster: East Window of Presbytery (587).—The composition of the tracery of large windows is much facilitated when there is an even number of lower lights; six, as at Grantham (589), or eight, as here and in the great west window of York minster (639). In the Lincoln window the main skeleton consists of two massive detached pointed arches supporting a massive circular centrepiece. Each of the above pointed arches contains two smaller pointed arches which also are detached, and carry a circular centrepiece. Finally each of the latter arches contains a pair of lancet lights, which are uncusped, and support a small circular centrepiece. All the thirteen circular patterns are cusped so as to form four or six lobes; *i.e.*, they are either quatrefoiled or sexfoiled circles. It is to be noted that all the mullions have shafts with foliated capitals and molded bases; these shafts, however, make the glazing difficult, and in later examples they are more often omitted.

[1] See the illustrations in the writer's *Stalls and Tabernacle Work in English Churches.*

The mullions also are of three differing thicknesses, and the tracery bars and the window arch each contain three orders of moldings. In essence the design is but a threefold repetition of a circle supported on two lancet lights: the smallest circles having the smallest order of moldings, the circles intermediate in size having the middle order of moldings in addition, and the great circle having all three orders. It is evidently an early window, as the heads of the lower lights are uncusped and the lobes of the tracery are parts of separate circles. The Lincoln retro-choir was begun *c.* 1255 and finished *c.* 1280. This window is 57 ft. high and 34 ft. wide.

E. S. Whitby Abbey

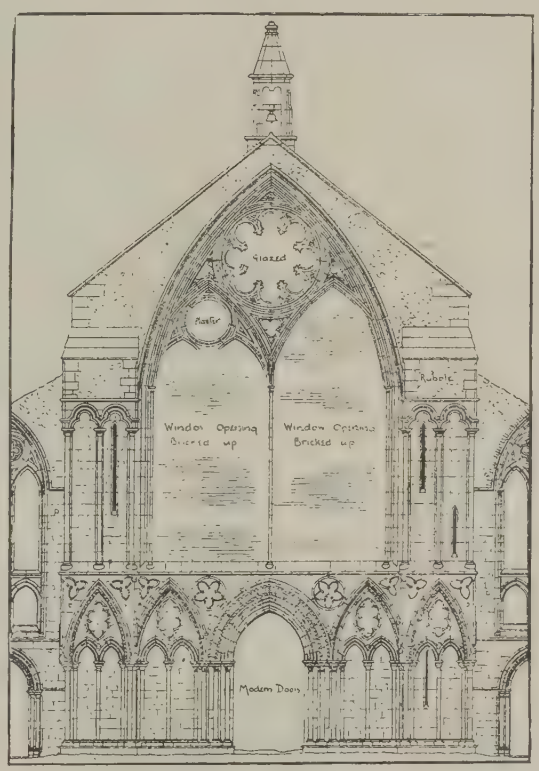
Grantham: West Window of North Aisle (589).—The framework again consists of two detached pointed arches supporting a circular centrepiece. Each of these arches contains three pointed lower lights, the central one being rather the highest, which carry two circles supporting another circle. The tracery is not a repeat of a single design, as in the east window of Lincoln; the great detached arches being doublets, while the lower lights form a pair of triplets. The centrepiece is filled up with seven circles. At present there are no cusps anywhere, and both tracery and mullions are of two orders; cast-iron cusps, which formerly existed, have been removed. The mullions are shafted, as in the Lincoln window. The window is 37 ft. 6 in. high and 21 ft. 6 in. wide.

Edlesborough, Bucks. (592).—This is a window of five lights, of which the central one is treated independently. The skeleton of the window consists of three pointed arches carrying a compound centrepiece of three circles. Of the above three arches each of the two outer ones is pointed and detached, and circumscribes two pointed and uncusped lights; these two carry a trefoiled circle. The central light is tall and broad; in it is inscribed a pointed false arch carrying a trefoil. In the centrepiece the small circle is quatrefoiled, the large circles are cinquefoiled. In the drawing, half of which, on the right, reproduces the exterior, and half, on the left, the interior of the window, the joints are thickened to shew the construction. The external arch of the window is of two orders, plus a dripstone; the internal arch of one order, plus a hoodmold. The uppermost circle is constructed of four blocks, and each of the large circles of eight blocks: it will be seen that some of the blocks are common to two of the circles, or even to three. The tracery is of early geometrical type.

Lincoln Cloister, begun in 1296 (599).—The framework of the window consists of two

pointed and detached arches carrying a circular centrepiece. In each of the above arches is inscribed a pair of pointed and detached trifoliated arches, which support a pointed quatrefoil. The centrepiece is filled in with three pointed trefoils inverted, and three small round-headed trefoils. The tracery has two orders of moldings; both are beaded. These superb windows, unsurpassed, perhaps unequalled at this period, owe much of their effectiveness to the depth and massiveness of the tracery.

Leominster Church: South Aisle of Nave (590).—The framework consists of two pointed and detached arches carrying a circular centrepiece. Each side arch includes two pointed trifoliated lights; and each of these pairs carries a circle. These two small circles are cinquefoiled. The circular centrepiece contains three pointed trefoils and three "daggers." The division of the centrepiece by spokes into six triangles, which make the dagger-shaped quatrefoils necessary, and the blunting of the cusps in the cinquefoiled circles should be noted. The mullions are without shafts and vary in thickness; the ballflowers, of which there are 820 in each window, are of three sizes, corresponding to the three orders of moldings. Both window arch and tracery have three orders of moldings. In the tracery the principal order is confined to the two great arches and the circular centrepiece; the third consists of the foliation; the rest has the second order. The window is 28 ft. high and 14 ft. wide. Compare the windows of Gloucester (596), Ludlow (600), and Ledbury (604).



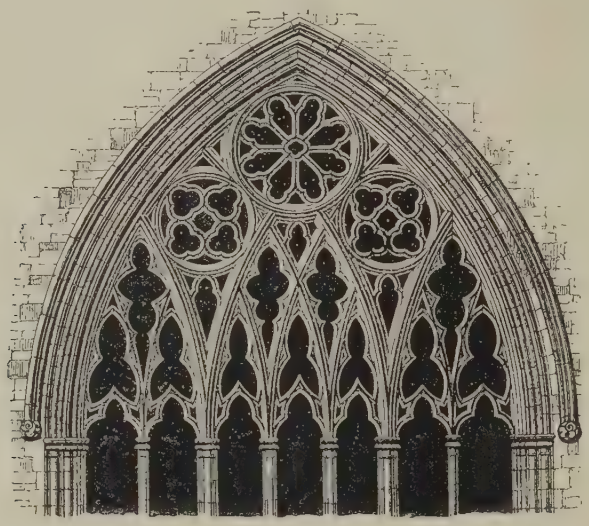
L. T. M. Binham Priory, Norfolk

Ludlow, Salop (600).—This is a window of four lights, quite exceptional in design and beauty. It has *drop tracery* of two orders, studded with ballflower. The four lights are pointed and trifoliated; and the central lights are lower than the outer ones. The mullions of the latter are prolonged so as to form still taller pointed and trifoliated arches. The two central lights carry a circular centrepiece, which is cinquefoiled.

Solihull, Warwick (600).—This is a pretty and unusual design in which foliated cusps are substituted for tracery; this window is from the chapel above the sacristy; the four large windows on the south side of the chancel are all of this type.—F. T. S. H.

Long Wittenham, Berkshire (601).—This is a window with tracery of three trefoiled lights, the mullions of the outer lights being continued upward to form attached pointed arches; in the head of each of these is a trefoil. These pointed arches, together with the central trefoiled light, support a circular centrepiece of six lobes. The massive construction of this window makes it entirely satisfactory, though the tracery is but of one order.

Temple Balsall, Warwickshire: Window on South Side (601).—This is a window of three pointed lights, the central one being the highest, which carry a centrepiece of three circles. The lower lights are trifoliated. The elongation of the lobes (*folia*) of the lower lights, and the fact that the central arch curves up into the two circles above it, and so is



Tintern

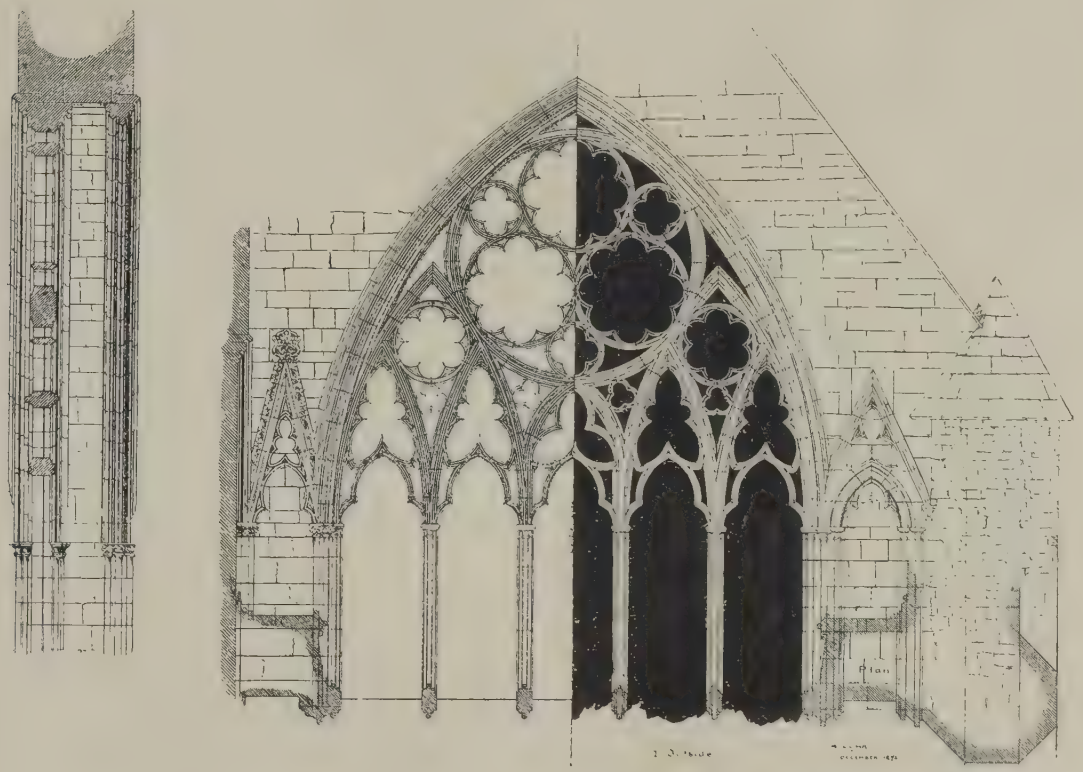
E. S. Barholme, Lincs.

Gloucester: South Aisle

ogee-headed, and that the three circles are not cusped, but contain each three round-headed and three pointed trefoils, is clear evidence that the window belongs to the latter part of the period. The mullions are shafted; and it is to be noted that the shafts are continued round the arches and tracery in the form of a roll; usually the roll is much more diminutive, when it is termed a "*bead*." The addition of a roll or bead adds very greatly to the beauty of tracery, and the bead long remained in use in the better windows; *e.g.*, in those of the

Corpus Christi chapel in Grantham church, said to be late fifteenth-century work.[1] Both roll and bead had one practical disadvantage; viz., that in such situations as the lower parts of the circles in the Temple Balsall centrepiece they formed a lodgment for the wet, and mischief from frost might ensue: in later tracery the bars have usually a hollow chamfer which will not hold wet, *e.g.*, Long Wittenham (601). There are two orders of moldings in the Temple Balsall tracery; one consisting of the three circles and the heads of the lower lights, the other of the trefoils. The window is 22 ft. high and 9 ft. 2 in. broad.

This is a *low side window*. For some reason, perhaps because he believed it to be



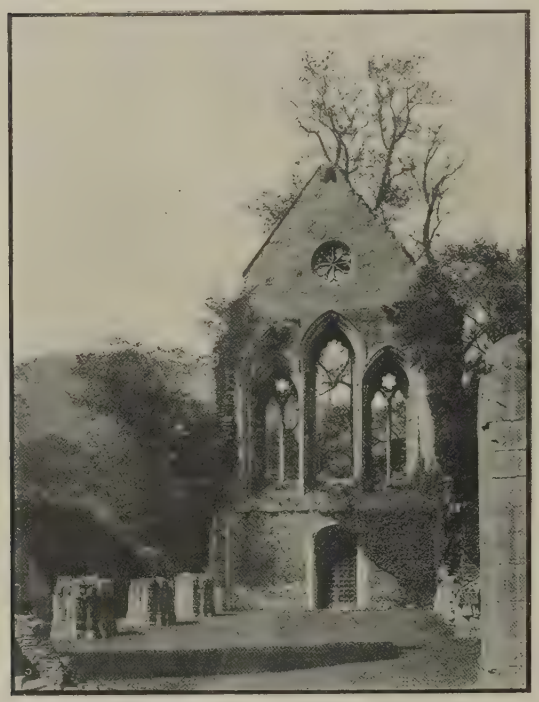
St. Etheldreda's Chapel, Ely Place, Holborn

a later insertion, the transom is omitted in the drawing in Mr Sharpe's *Decorated Windows*; as a matter of fact, it is *in situ*.—F. T. S. H.

Tintern: West Window of Nave (596).—Here there are seven lights, and the usual difficulty arises of designing a large window with an odd number of lights. The same method is adopted as at Heckington (642); the seven lights being disposed 2, 3, 2. The main framework consists of three great arches, with massive mullions, supporting a circular centrepiece: of these three the side arches contain two lights, and the central arch three;

[1] There is a good example of continuous beading in mullions and tracery in the east window of Easingwold, Yorkshire; probably *c.* 1330.

unfortunately, to get room for the centrepiece, it has been found necessary to chop off the head of the central of the three arches. Of the seven lower lights, the curves of the central one are carried, so far as they can find way, continuously up to either side of the window arch. In the heads of the seven lower lights is a row of seven long-lobed pointed trefoils, and above and between each pair are six "daggers," of which two are small, and two large. The two small circles contain trefoils; the large circle blunted "daggers." The prominence of the long-lobed pointed trefoils and the "daggers," and the fact that the circles are not cusped, point to a late date; it is known that in 1288 only two bays of the nave had been finished; the west front, therefore, with its window must be considerably later than that date.



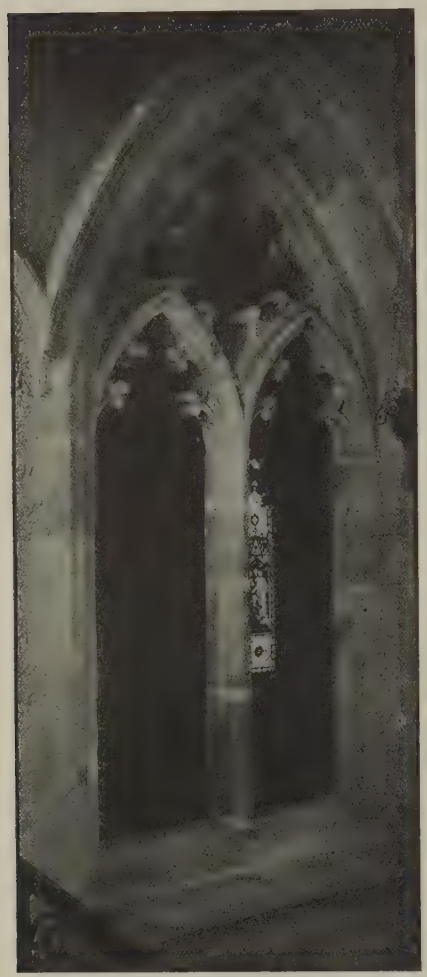
F. B. Valle Crucis Abbey: West End

Easby Abbey: East Window of Refectory (593).—This is a window of five lights, and the difficulty of the odd number is got over by treating the central light separately. By a most unusual device, each attached arch, which, normally, would take in a pair of lower lights, after coalescing with the window arch melts into the circumference of a large circular opening. The central of the five lower lights is much taller than the rest; but, unfortunately, to make room for a large circular centrepiece, its head had to be chopped off; (so also in the west window of Tintern); below, it is converted into a pointed trifoliated arch on the same level and of the same design as the rest of the lower lights; the space between the upper and lower portion of the central light is filled in with a long-lobed pointed trefoil. The lower circles are cinquefoiled, *i.e.*, have five lobes; the circular centrepiece contains five round-headed trefoils round a pentagonal "eye." On either side of the centrepiece is a long-lobed pointed trefoil. The mullions are without shafts. For the bead is substituted a rectangular *fillet* running over mullions and tracery. All the cusps are on the soffits of the arches, except one single cusp of the trefoils in the centrepiece. As the drawing shews, there are two orders of moldings in the window arch, but only one in the tracery. The window is 18 ft. 9 in. high, and 12 ft. 9 in. wide. (In the drawing the joints have been thickened to shew more clearly the shape of the blocks of which the mullions and tracery are composed; thus each mullion is formed of two blocks, and each of the great circles of six.)

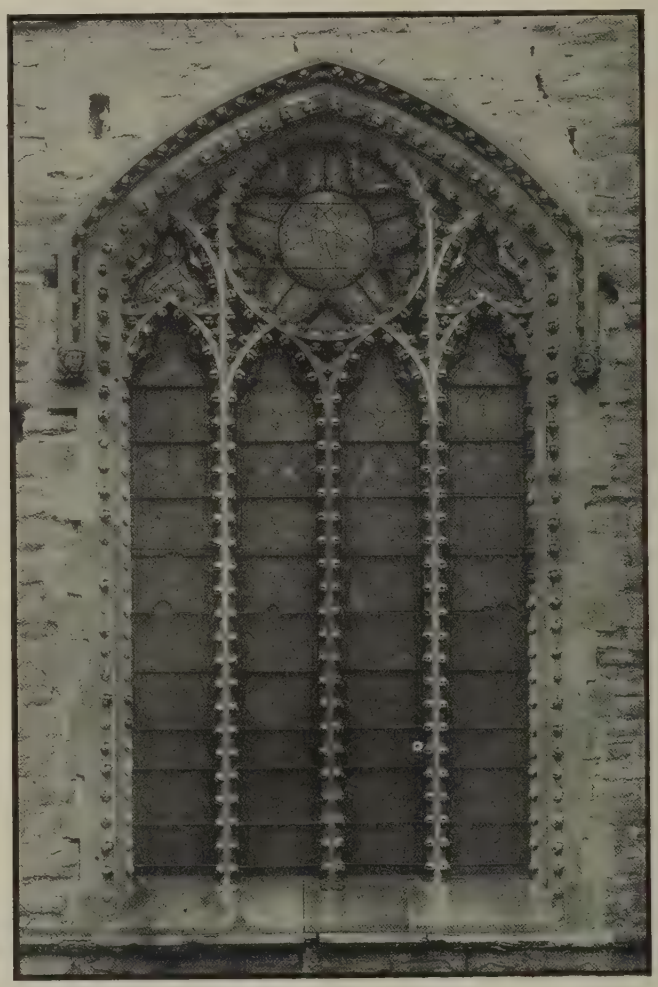
Geddington, Northants: East Window of Chancel (602).—This is a simplified form of the window in the same position at Wellingborough (591); the chief differences lying in the treatment of the dripstone and lower lights and in the absence of double foliation in the centrepiece.

F. B. Lincoln Cloister

St. Etheldreda's Chapel, Ely Place, Holborn, London : East Window (597).—The window has five lights, of which the central one is treated separately. Its framework consists of two pointed and detached arches, which, with the head of the central of the lower lights, support a circular centrepiece. Each of the detached arches contains two attached pointed arches,



F. T. S. H. Solihull, Warwick



W. M. D. Ludlow

each of which, as well as the central light, is crossed at the spring by a trefoiled arch : on each trefoiled arch is a pointed trefoil with secondary cusping. The outer pairs of lower lights carry a sexfoiled circle. The centrepiece contains three large circles which are octofoiled, and three smaller which are quatrefoiled. The mullions have shafts with capitals and bases ; the shafts die off into a bead. The illustration shews half the outside

of the window on the right, and half the inside on the left. The building was formerly attached to the town house of the Bishop of Ely; and is still in use as a Catholic chapel. Though the window is so large and elaborate, yet it seems not to be late in the period; the cusped circles and the shafted bases point to an early date; there is nothing of late character except the pointed trefoils; it may belong to the last decade of the thirteenth century.

Barton-on-Humber: Aisle of St. Mary's Church (602).—In this window the three lower

F. H. C. Long Wittenham, Berks.

F. T. S. H. Temple Balsall, Warwick

lights have *trefoiled* heads; they are not pointed arches with a cusp on each side; *i.e.*, they are not pointed trifoliated arches. They carry two large round-headed trefoils, on which is a single one pointed and inverted. The tracery is of one order.

Rippingale, Lincolnshire (603).—The two main arches are pointed and attached, and each contains two pointed trefoil arches, supporting a large round-lobed trefoil. The centrepiece consists of a round-lobed trefoil inverted. Note the beading.

Ledbury, St. Catherine's Chapel, c. 1307-*c.* 1327 (604).—The framework consists of two pointed and attached arches, each containing two pointed and detached subarches; the latter

are crossed at the spring by a trefoiled arch; in the heads of the main arches and subarches are quatrefoils, of which two have ogee heads. The two main arches support a pointed quatrefoil. The cusps of the three large quatrefoils are foliated. Ballflower is abundant.

Exeter Cathedral: Clerestory of Choir (605).—Both windows contain a pair of pointed attached arches carrying a centrepiece; in both the above arches circumscribe a pair of pointed attached arches, each of which is spanned by a trefoiled false arch supporting a long-lobed pointed trefoil. But in the window on the left the centrepiece of each of the large arches consists of a small round-headed quatrefoil set diagonally, and supported by an uncusped "dagger"; whereas in the window on the right it consists of an upright quatrefoil. Moreover, in the latter window the main centrepiece consists of a large quatrefoil supported

F. B. Geddington

Fleet

Barton-on-Humber

by an uncusped "dagger," whereas in the former it is a circle which contains three round-headed trefoils, and is supported by an inverted trefoil.

Chester Cathedral: South Aisle of Choir.—The skeleton of this window consists of a pair of pointed and attached arches supporting a centrepiece. Each of these arches circumscribes a pair of pointed and detached arches. Each of these is spanned by a trefoiled false arch supporting a quatrefoil, and the two arches support a large round-headed trefoil, beneath which is a "dagger." The centrepiece consists of a quatrefoil set diagonally and supported by a "dagger" (606). The other window has five lancets of graduated height, of which the central one is the loftiest and broadest; it is spanned by an obtusely pointed trifoliated false arch, which supports a small round-headed trefoil. On either side is a pair of lancets, of which the outer ones are the tallest; none of these are cusped. The centrepiece is compound, and consists of two trefoiled circles, which support another trefoiled circle with the trefoils inverted.

Whitby Abbey : North Aisle of Nave (594).—The framework consists of two pointed and *attached* (or as they are sometimes termed, "*engaged*") arches. These have a roll molding ; the rest of the tracery has a bead ; this marks the distinction between the two orders of tracery. The mullions also are of two thicknesses and of different design. Each of the great attached arches contains a pair of pointed lights, which are trifoliated. The main arch and the side arches have each a centrepiece of "Kentish tracery" ; this consists of a quatrefoil set diagonally ; it has complex cusping, *i.e.*, double foliation (a mark of late

G. G. B. Rippingale, Lincolnshire

G. G. B. Billingborough, Lincolnshire

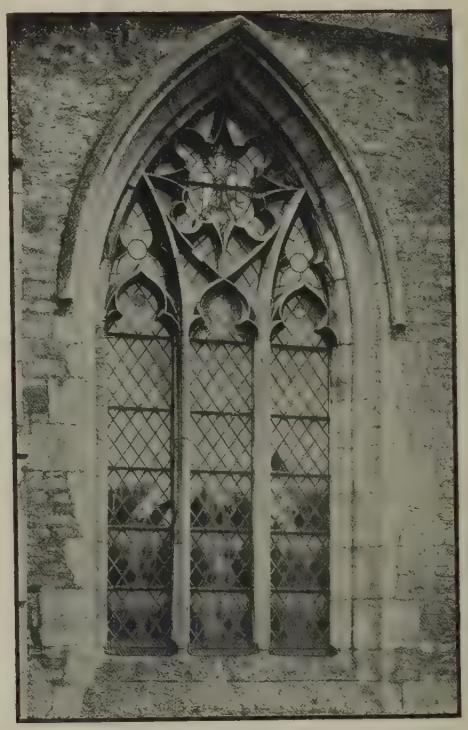
date), and half way down each side of the quatrefoils there are projecting spikes. (Sometimes the spikes are not straight, but curved; *e.g.*, at Great Bedwyn, Wilts.[1]) The principal order of moldings is confined to the two great arches ; all the rest of the tracery has a subordinate order of moldings. The minor mullions have bases but no capitals. The window is 23 ft. 6 in. high and 13 ft. 3 in. wide. The drawing hardly does justice to the massiveness of the mullions and tracery of the ruined window. The name "Kentish tracery" is given because it occurs most frequently in Kent ; fine examples are seen in the parish

[1] Illustrated in Sharpe's *Decorated Windows*.

church of Chartham, Kent; and in St. Anselm's chapel, Canterbury cathedral, where, however, the centrepiece is a spiked trefoil and not a quatrefoil.[1]

Billingborough, Lincolnshire (604).—This is a window of three lights, of which the two outer are pointed and attached, and each contains in the head a long-lobed trefoil; the base of each trefoil forms an ogee arch which is trifoliated. The central light is much lower and has a pointed trifoliated head. The centrepiece contains a curvilinear lozenge, as in the great west window of Howden (1), in which is inscribed Kentish tracery. It will be noticed that the superposition of a pointed trefoil on a pointed arch converts the

G. G. B. Ledbury, Hereford



G. G. B. Billingborough, Lincolnshire

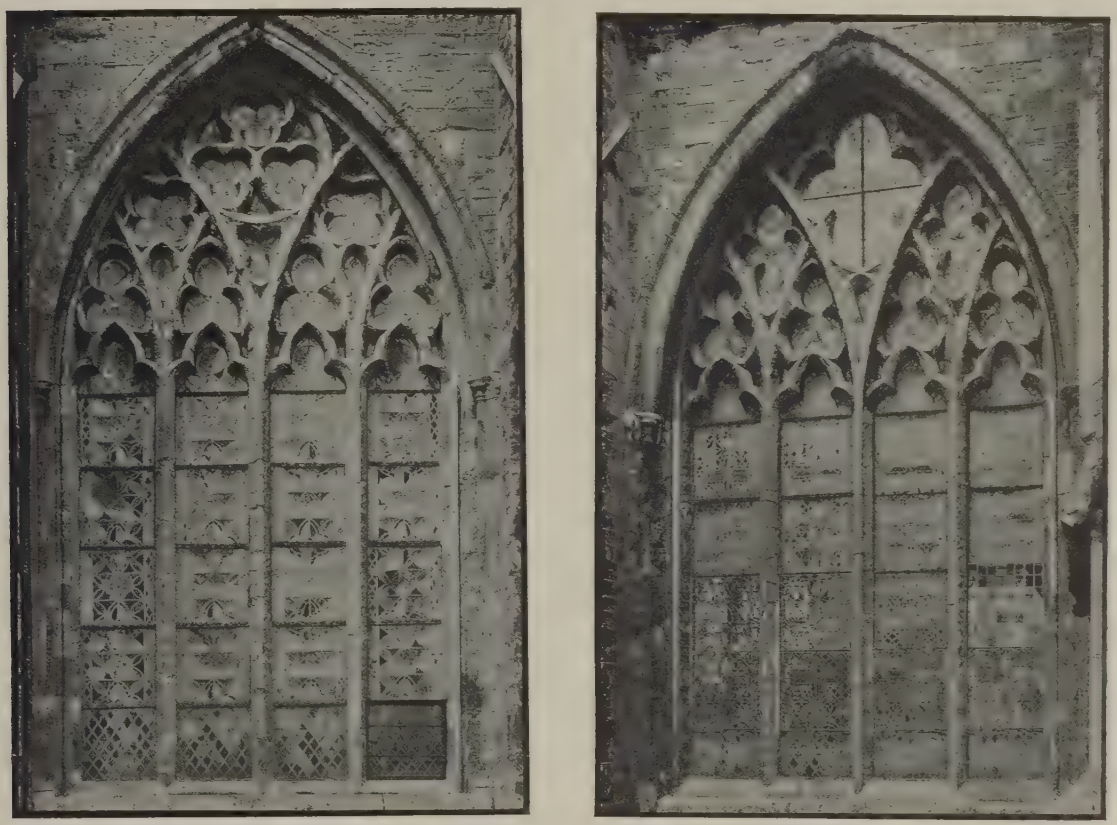
latter into an ogee arch. The moldings are of one order. The window is early in the fourteenth century.

Hereford Cathedral: North-east Transept (607).—The framework of the window consists of two pointed and attached arches. Each of these side arches contains a pair of lower lights, pointed and trifoliated, and has for centrepiece the large, pointed, sprawling trefoil which is so common in Herefordshire. Between the two main arches is a pointed cinquefoil,

[1] Willis in his *Canterbury Cathedral*, p. 115, illustrates this window, and reprints the bill for its making in 1336; which amounts to £42. 17s. 2d., or about £650 in our money: this amount, however, did not include the leading.

and beneath it a "dagger." The two attached arches have the principal order of moldings; the rest of the tracery has the subordinate order.

Howden, Yorkshire: West Window (1).—The main framework consists of two tall pointed and detached arches supporting a centrepiece. The above arches circumscribe a pair of trefoiled arches; these support a pair of trefoils, which in turn support a quatrefoil. The centrepiece consists of a quatrefoil inscribed in a curvilinear lozenge; there is double



F. H. C. Exeter: Clerestory of Choir

foliation, each lobe of the quatrefoil being trifoliated. All the trefoils and quatrefoils are pointed. The jamb shafts continue upwards, forming the rolls of the window arch. The latter is spanned by a crocketed pediment. The transom is a later insertion. The tracery is of two orders. The window is 30 ft. high and 15 ft. 9 in. broad, and was probably designed in the first decade of the fourteenth century.

Roxby, Lincolnshire (608).—The framework of the window is a pair of pointed arches, which *intersect*, and whose inner curves are reversed so as to form a centrepiece in the form of a *vesica piscis*, *i.e.*, a pointed oval. The two intersecting arches enclose three pointed

lower lights, each of which at a level with the spring of the window arch is crossed by a trefoiled arch; the space between is occupied by a long-lobed pointed trefoil. In the heads of each intersecting arch is another small trefoil. Between each of these arches and the window arch is a curved trefoiled "dagger," which may be termed a "*falchion*," (French "*mouchette*"). The *vesica piscis* contains a large quatrefoil with complex cusping.[1] The windows which follow, up to and including Wells Lady chapel (73), are without centrepieces.

Eastleach Martin, Gloucester: North Transept (610).—This is a window of five lower

F. H. C. Chester Cathedral: South Aisle of Choir

lights pointed and attached; each is spanned at the spring by a trefoiled arch bearing a long-lobed pointed trefoil. The pointed arches of the three central lights, being continued, intersect and produce four pointed arches; these four, being continued, produce three pointed arches; similarly two pointed arches are produced above, and finally one. In upper apertures of the tracery are octofoiled "daggers."

Broughton, Lincolnshire (611).—The window consists of three pointed and attached lower

[1] It may have been a Jesse window, with Our Lady at the top; the church being dedicated to St. Mary.—J. T. F.

lights. The curves of the central arch are continued up to the window head and intersect: the three arches being thus reduced to two, and the two to one. Each of the three lower lights contains a false arch, trefoiled, which supports a long-lobed pointed trefoil. In the heads of the two arches above are two round-headed trefoils inverted. At the top is a pointed quatrefoil; there is no centrepiece. The window belongs to the second period of geometrical tracery.

Wimborne Minster, Dorset.—The aisle window has five graduated lancets rising to the window head; each is cinquefoiled (614). The transept window also consists of five graduated lancets rising to the window head; each is spanned by a cinquefoiled false arch, supporting a cinquefoil.

F. B. Hereford Cathedral: North-east Transept

Chichester Cathedral: Lady Chapel (615).—These windows also have graduated lancets rising to the window head. The first, second, and fourth from the east are of identical design, containing three large pointed trefoils and two small round-headed ones; whereas the third window has five cusped circles, of which two are quatrefoiled and three trefoiled. The date of the eastern bays of the Lady chapel is 1288-1304; probably approaching the latter.

Eastleach Martin, Gloucestershire.—The east window consists of three trefoiled lights, the central of which rises to the window head. Above each side light is a pointed cinquefoil (610).

Barnack: East Window of Chancel (616).—This window is a blend of two types; for while its framework consists of five graduated lancets rising to the window arch, all its mullions also rise to the window arch. Distinction is given to the design by the presence in the head of each lancet of a pediment crocketed, finialed, and trifoliated, the foliation being of a subordinate order; the east window of Merton College, Oxford,[1] also has pediments flanked by pinnacles rising up out of the mullions.

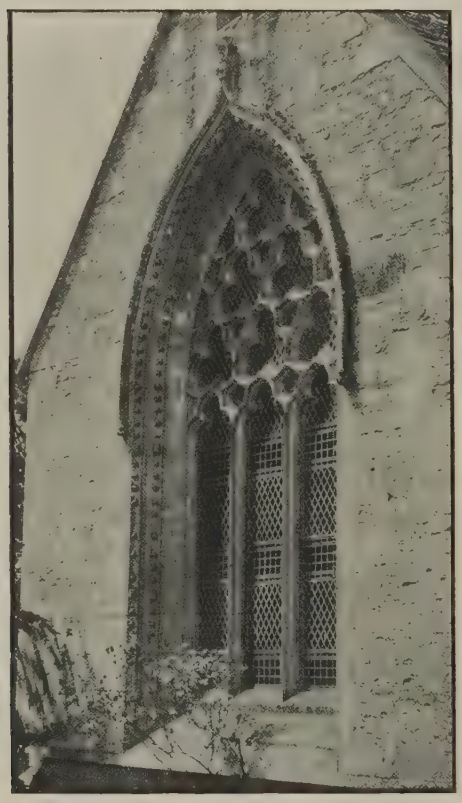
Fleet, Lincolnshire: North Window of Chancel (602).—This window is divided into three parts by mullions which rise vertically up to the window arch. The central is the highest of the three lights, and all three have trefoiled heads, supporting large round-headed trefoils. The tracery is all in one plane. The chancel had to the north till modern days a thirteenth-century chapel (the weathering of one of its arches is seen above the window), so that the window must have been taken out and reset.

Wells Lady Chapel (73).—This window has five pointed lower lights. These support

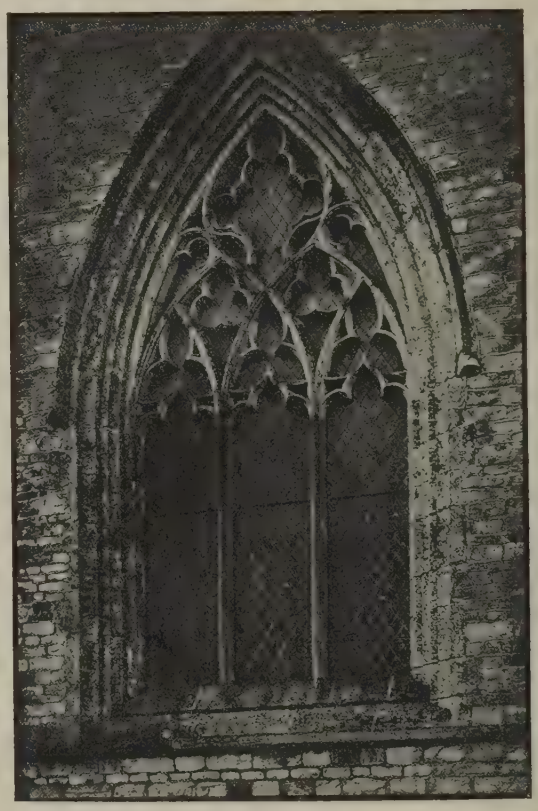
[1] Illustrated in *Gothic Architecture in England*, 473.

row upon row of trefoils; the lowest row containing four, the middle row three, the topmost two; the space between these and the containing arch of the windows is filled with broken trefoils. Worked with flowing curves, this window appears later in such examples as Higham Ferrers (631). Another of these trefoiled windows is illustrated from Meysey Hampton, Gloucester (608); the tall windows of Lichfield Lady chapel are also of this type.

We now come to a group of windows of transitional type; they contain much geometrical tracery, and therefore may be studied in connection with the foregoing examples;



Meysey Hampton, Gloucester



J. T. F. Roxby, Lincolnshire

on the other hand, ogee curves and ogee arches occur, and they might with equal propriety have been placed in the following section and studied in connection with such windows as those at Orford and Olney.

Hull: South Transept of Holy Trinity Church (617).—This is a six-light window, the framework of which consists of three detached pointed arches, and six lower lights supporting a pair of curvilinear triangles, which again support an imperfect curvilinear quatrefoil of curious shape, half concave, half convex. The two triangles and this curvilinear quatrefoil are again enclosed in a very large curvilinear triangle, the base of which is supplied by the

bases of the two smaller curvilinear triangles. The lower lights are pointed and trifoliated. So far all the tracery consists of simple geometrical curves, and the window might belong to the geometrical period (*c.* 1240–*c.* 1315). But each of the detached arches contains as centrepiece a quatrefoil, whose four lobes are all ogee arches; while, in the three centrepieces above, all the trefoils also have ogee lobes. Moreover, on either side of the upper lozenge and the great curvilinear triangle, curved bars are introduced which have the compound wave curve. The window is, therefore, not so early as it looks, and may be part of the new work which is known to have been finished in 1327. The window has "edge," not "bead" or "fillet" tracery; and the distinction between the two orders of moldings is greatly emphasised, the minor order being very attenuated. It is quite an exceptional window, the window arch having only one order, while the lower lights have the principal order of moldings, the subordinate order being confined to the foliations of the centrepieces. The window is 37 ft. high and 19 ft. wide.

F. B. Grantham: West Window

Howden: West Window of Aisle of Nave (618).—This is a three-light window, of which the central light supports a circular centrepiece. Of the lower lights, the central has a pointed and each side light an ogee arch; all three arches are trifoliated. The side curves of the circle are reversed so as to form a downward ogee curve. The centrepiece contains three upright, long-lobed, pointed trefoils, and three round-headed ones inverted. On each side of the centrepiece are large trefoils, each lobe of which has ogee curves. In spite of the geometrical centrepiece, the window is proved to be of late date by the frequency with which the ogee curve is employed. The mullions have what look like shafts, which have bases but no capitals; really they are beads overrunning the surface of mullions and tracery. The moldings have two orders, the subordinate order being confined to the foliation. The window is 18 ft. 6 in. high and 10 ft. 5 in. broad.

Wells Chapter House (590).—The framework consists of two massive arches, which are now not detached, but *attached*, *i.e.*, form part, on one side, of the window arch. Each contains two minor pointed arches, the lower lights, which also are *attached*. Each of the four lower lights is trefoiled at the level of the spring of the window arch, and the upper part of each is occupied by a long-lobed pointed trefoil. Each pair of lower lights carries a circle, as do the upper and large pair of pointed arches. Each of the three circles has six lobes (*folia*), *i.e.*, is sexfoiled; and the lobes form ogee arches; this fact, together with the presence of ballflower and an ogee dripstone, makes it likely that the window was not designed before 1315; there is documentary evidence that the Chapter house was still unfinished in 1319.

Note the presence of a dagger-shaped figure beneath each circle; this rarely appears in early geometrical work.[1] The window is 27 ft. high and 18 ft. 3 in. wide.

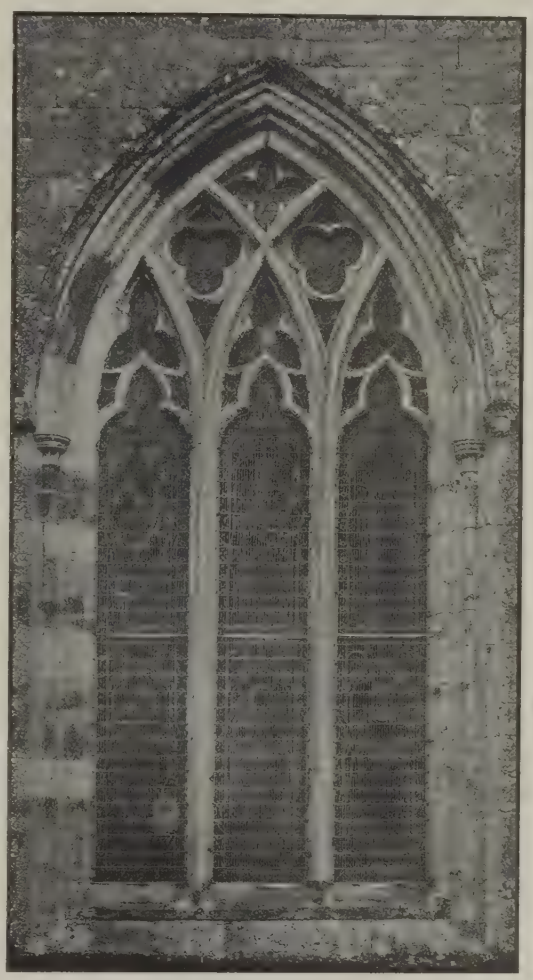
Wellingborough: East Window of Chancel (591).—There are five lower lights, and the central one is treated separately. The framework consists of two pointed and detached arches, which, with the aid of the central of the lower lights, support a circular centrepiece. Each of these side arches includes two trifoliated lights with ogee heads; between the latter is a "dagger" carrying a long-lobed pointed trefoil. The central light has a pointed head, but is subdivided by a trifoliated ogee arch; between the pointed and the ogee arch is an ogee-

G. G. B. Eastleach Martin, Gloucester

shaped trefoil. The centrepiece is made up of three long-lobed pointed trefoils with double foliation, set vertically, and three ogee-shaped trefoils, inverted. Mullions and tracery are beaded; there are no shafts to the mullions. The dripstone is an ogee arch, rising up into a finial, above which is a niche for a statue. The stops of the dripstone consist of the emblems of St. John and St. Matthew; on a level with the sill are the emblems of St. Luke and St. Mark. The moldings are of two orders, the second order consisting of the foliation. The window is 16 ft. 6 in. high and 9 ft. 10 in. wide.

[1] The dagger-shaped figure, with the top part simply curved, appears in the east window of Exeter Lady chapel before 1300. The centrepiece of the latter is curiously similar to the window illustrated from Temple Balsall.—A. H. T.

Billingborough, Lincolnshire (603).—Here the two lower lights are trefoiled (not trifoliated) and carry a pair of trefoils, which support a single round-headed trefoil. Since the heads of the lower trefoils have ogee arches, the window will not be earlier than the commencement of the fourteenth century. The tracery is of one order.

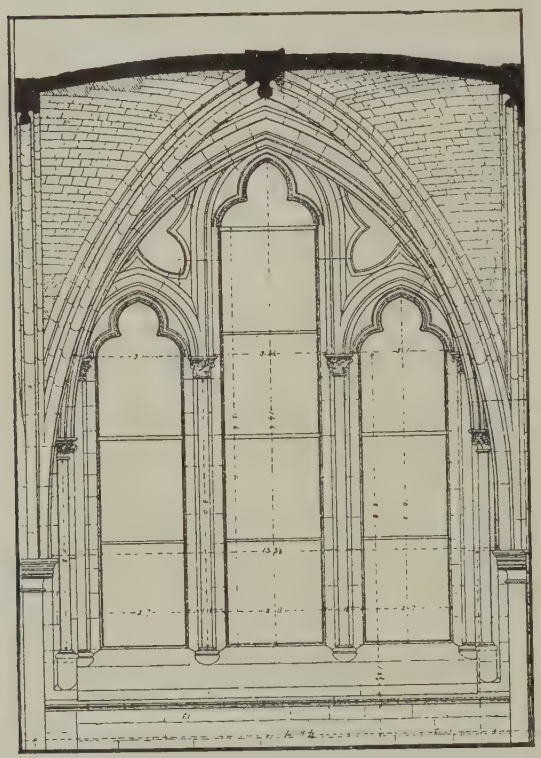


F. H. C. Broughton, Lincolnshire

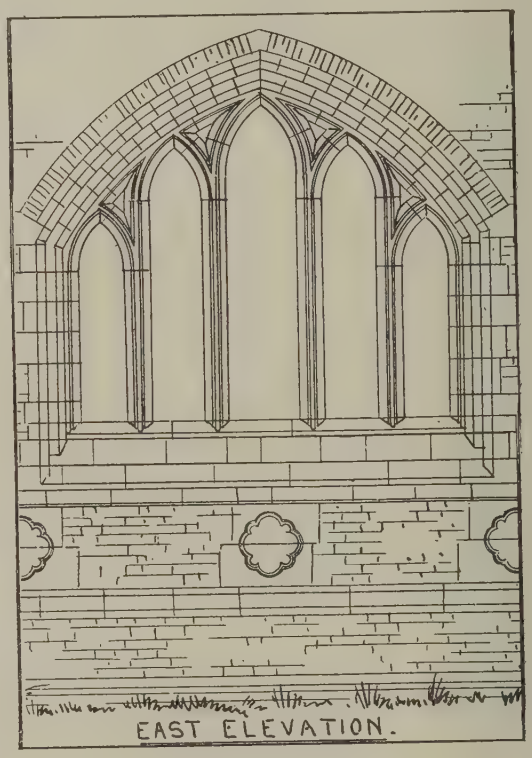
FLOWING OR UNDULATORY TRACERY

By the fourteenth century people were beginning to tire of tracery composed of simple geometrical curves. Such tracery as that of St. Etheldreda's, Holborn (597), is singularly lovely; but how it must have been loathed by the glazier, who, without a diamond to aid him, had to chip his glass as best he could, into the singularly awkward apertures left between the geometrical patterns. Equally disgusted must have been the glass-painter, obliged to introduce saints and prophets, priests and angels, into apertures singularly ill-fitted to receive them. For both craftsmen flowing tracery must have come as a boon and relief. Not that all flowing tracery by any means is well adapted for the glass-painter: many windows abound in apertures both small and eccentric in shape; nevertheless, as the capacities of flowing tracery were better recognised, and it became more and more flamboyant in character, many windows were produced, especially in France, where flowing tracery received a more complete development than among ourselves, which were well adapted for stained glass; among those illustrated good examples from the point of view of the glass-painter are the windows at Edingthorpe (632), Ringstead (622), Wymington (637), Castle Ashby (637), Sleaford aisle (620), Patrington nave (645), and Welwick (664). It may be said also with respect to a good deal of geometrical tracery, and with truth, that there is not very much brainwork in it; anyone, with a pair of compasses, could design a passable group of circles, trefoils,

quatrefoils, or the like. Something better than this was wanted—an organic design—one in which the curves, instead of being each independent of the rest, should melt into each other without jar or discordancy. To achieve this was to win the highest success in tracery design; but it was difficult to achieve. The traditions of geometrical design lingered long; it was not till late that it was recognised that every curve in the tracery must be compound, *i.e.*, a flowing curve; that the introduction of any simple curves broke into and stopped the undulation of the



M. A. Westminster: Vestibule to Chapter House



A. F. Isle Abbotts, Somerset

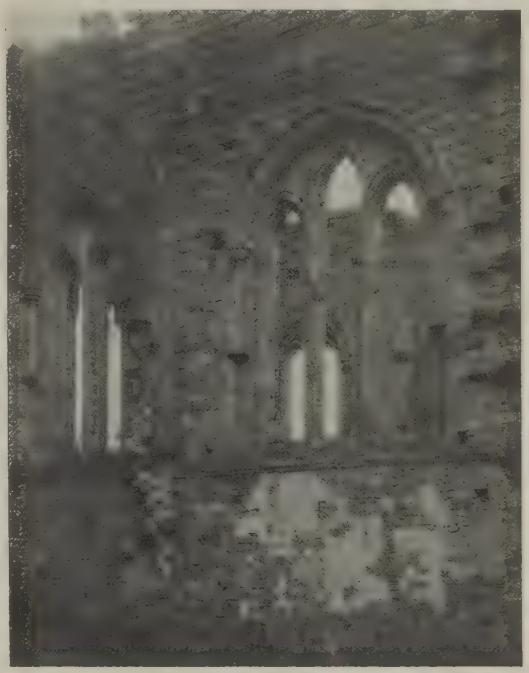
tracery. Nowhere must there be a *cul de sac*; nowhere an *impasse*; all over the design there must be an uninterrupted flow from curve to curve. Of this principle the tracery of such a window as that in the Hull transept (617) is a negation; there is no flow from the six pointed arches below to the three pointed arches above, nor from the latter to the two curvilinear triangles, nor from these two to the quatrefoil above them. So in the Wellingborough window (591) there is no passage up to the great circle either from the two detached pointed arches or from the arch of the central light. At Heckington (642), on the other hand, though there are pointed lower lights and pointed detached arches higher up, the transition from

simple to flowing curves is managed with hardly a jar: equally successful in securing unbroken undulatory flow is the tracery at Cottingham (623), the aisle (620) and transept (625) of Sleaford, the aisle of Chester cathedral (638), Nantwich aisle (644), and Patrington nave (645).

The vehicle of change was the famous ogee curve which overran all England in the fourteenth century and captured France in the century following. It is a curve of which one portion is concave, the other convex. The ogee arch is composed of two of these compound curves, in each of which the upper part bulges inward, while the lower part swells outward. It was frequently accompanied by "double foliation," which is well seen at Edingthorpe (632), Wellingborough (591), and Sutton Benger (628).[1]

The effect of the new tracery was totally different from that of its predecessor. In the latter there was no interest in the curves of the tracery bars; its beauty lay in the form of its openings —circular, trefoiled, quatrefoiled, or what not. In flowing tracery it is the curves of the bars that the eye follows; the forms of the openings are of little or no interest; many indeed, especially in flamboyant tracery, are nothing but monotonous repeats of "daggers" and "falchions,"[2] *e.g.*, Cottingham.

The new type of flowing design crept in very cautiously. At Temple Balsall (601) the design at first sight appears to be thoroughly geometrical, viz., three pointed arches carrying three

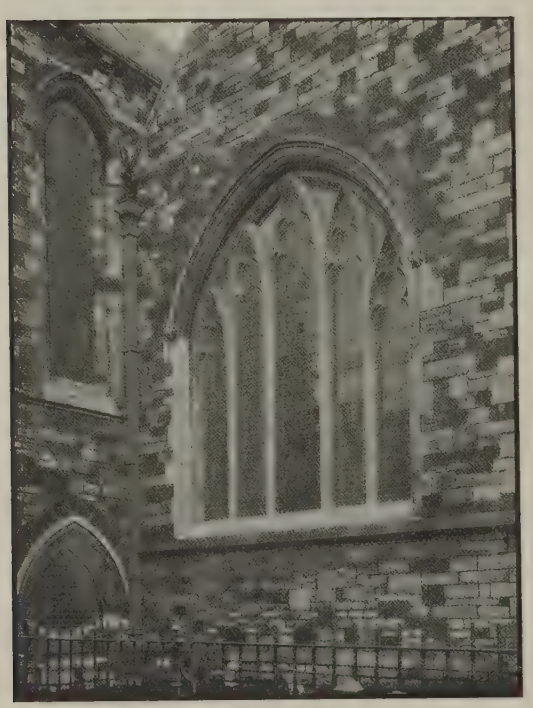


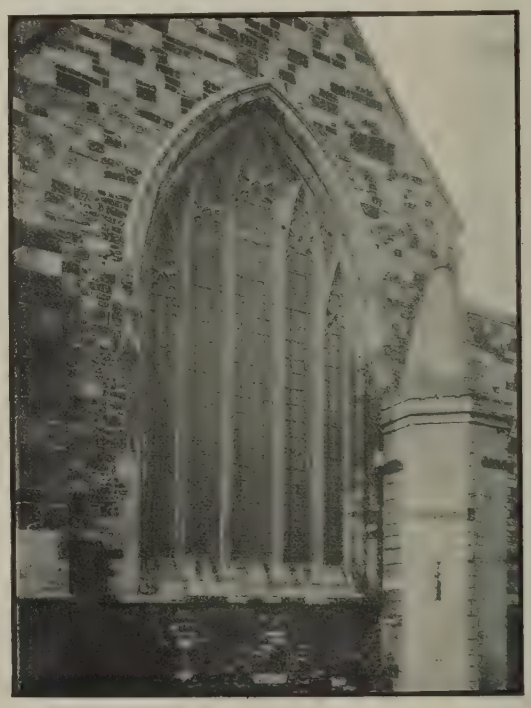
F. B. Eggleston Abbey: Presbytery

[1] At Sutton Benger the jambs and mullions have bands of ballflower, which is generally *temp.* Edward II. At the bottom of the central light, as originally in the east window of Ely Lady chapel, is a solid panel, which externally has a repeat of the window tracery, and internally may have formed part of a reredos, with a niche for a statue of the patron saint of the aisle altar; not of the High altar, for the church is dedicated to All Saints.

[2] "Flamboyant tracery," says M. Camille Enlart (*Architecture religieuse*, 605), "consists mainly of *soufflets et mouchettes*"; "the *soufflet* is a kind of elongated quatrefoil"; for this there is no English equivalent; we have styled it in this chapter "*dagger*." Sometimes this *dagger* or *soufflet* has a straight-sided blade, sometimes the sides of the blade are slightly hollowed or have an ogee curve. In the window at Ringstead (622) the topmost opening is a *dagger*. The *falchion* or *mouchette* differs in having always a curved blade; "the *soufflet* is an ellipse, generally curved, with internal cusps," says M. Enlart. In the Ringstead

circles filled with trefoils; but the two curves of the head of the central light melt imperceptibly into the circles above, converting the pointed into an ogee arch.[1] When simple and flowing curves are mixed up together failure often ensues; but when either one or the other set of curves is shut up in a separate compartment, charming designs may result, as in the three upper patterns of the Hull transept (617) and at Orford, Suffolk (631), St. Mary's, Scarborough (634), and Olney, Bucks. (695). As time went on, the geometrical





F. B. Wimborne Minster

elements went more and more out of fashion, and the best windows of the second quarter of the fourteenth century were designed wholly, or almost wholly, with flowing curves. To the last, however, there was a tendency to retain the pointed arch in the lower lights; and, indeed, nothing is more piquant than the contrast

window ten apertures, *i.e.*, all except the one at the top, are *falchions*: they abound also in the Cottingham window and in the window of Hull aisle (624); in this latter the tracery consists wholly of *daggers* and *falchions*. There are three good examples of falchions in the Carlisle window (675).

[1] This church is said to have been built by the Templars; and, if so, would be prior to 1307, when the property of the order was confiscated; it was a small parochial chapel of which the Templars were rectors.

between the primness of the pointed arch and the free flow and swing of the ogee arch in such compositions as the east window of Carlisle, the aisle windows of Beverley nave (636), Olney, Bucks. (695), and the west window of York minster (639). It is a great change to turn from such windows as these to such tracery as that of Cottingham (623) or Nantwich (644), where simple geometrical curves are wholly eliminated. Windows designed with purely undulatory tracery are much more common in France; with us an admixture of simple geometrical curves is too

F. S. Chichester Lady Chapel

frequent. The French, indeed, started where we left off; up to the fifteenth century they had evolved nothing but geometrical tracery, and that usually of early and simple character. When, therefore, in the fifteenth century, they borrowed, as they seem to have done, tracery design from England, it was not our hybrid combinations of geometrical and undulatory tracery that they studied and adapted, but our most advanced designs, those of pure flowing character. In the history of French window tracery, indeed, two interesting periods are almost wholly missing; first, the period of our late geometrical tracery; secondly, that of our early undulatory tracery with its survivals of geometrical design; speaking in a general way, it may be said

that the French passed without transition from early geometrical to fully developed flowing, or, as it is termed in France, flamboyant tracery.[1]

The hiatus in the development of window tracery is but one feature in the history of mediæval art generally in France in the fourteenth century. In that century hardly a single great church was built except the choir of St. Ouen in Rouen, a city which was in English occupation; and many a great thirteenth-century cathedral was left uncompleted; Reims cathedral is the chief exception. When the great troubles came, the cathedrals of Limoges and Narbonne had only built their choirs; Narbonne is still without a nave; Limoges only received a nave in the nineteenth century. More often choir and nave had been finished, but not the transepts. It was not till the fifteenth century that transepts were completed or added to the cathedrals of Paris, Sens, Amiens, Limoges, Le Mans, Beauvais, Auxerre, Troyes, Senlis, Séez. The period from *c.* 1330–*c.* 1440 for the French was one of terrible anarchy, warfare, famine, and pestilence; for a hundred years they were at war with ourselves; such a period was no seed-ground for architecture. "The fourteenth century was torn by frightful disasters. It began with the ignoble quarrels between Philippe le Bel and the Pope; it saw the stake lighted for the Templars, made bonfires in Languedoc of the *Bégards* and the *Fraticelli*, the lepers and the Jews; wallowed in blood under the defeats of Crécy and Poitiers, the furious excesses of the Jacquerie and of the Maillotins, and the ravages of the brigands known as the *Tard-venus*; and finally, having run so wild, its madness was reflected in the incurable insanity of the king. Thus it ended, as it had begun, writhing in the most horrible religious convulsions. The tiaras of Rome and Avignon clashed, and the Church, standing unsupported on these ruins, tottered on its base, for the great Western Schism now shook it. The fifteenth century seemed to be born mad. Charles VI.'s insanity seemed to be

F. B. Barnack, Northants

[1] Mr Edmund Sharpe, writing in 1849, *Decorated Windows*, p. 109, says, "The construction of tracery was undeniably practised on a large scale on the Continent before it appeared in this country . . . and such was the adherence to the original type . . . that the severe outline of the circle carried by two arches may be said to have been almost immediately succeeded by the extravagant forms of flamboyance; and Continental tracery may be, in general terms, divided into two great classes, the first of which is analogous to our earliest geometrical, and the second to our latest curvilinear; to the varied forms of our late geometrical and the graceful outline of our earliest flowing tracery the architecture of the Continent offers scarcely a single parallel."

infectious; the English invasion was followed by the pillage of France, the frenzied contest of the Bourguignons and the Armagnacs, by plagues and famines, and the overthrow

E. S. Hull Transept

of Agincourt; then came Charles VII., Joan of Arc, the deliverance and the healing of the land by the energetic treatment of King Louis XI. All these events hindered the progress of the works in cathedrals. The fourteenth century on the whole restricted itself to carrying on the structures begun during the previous century. We must wait till the

end of the fifteenth, when France drew breath, to see architecture start into life once more." [1]

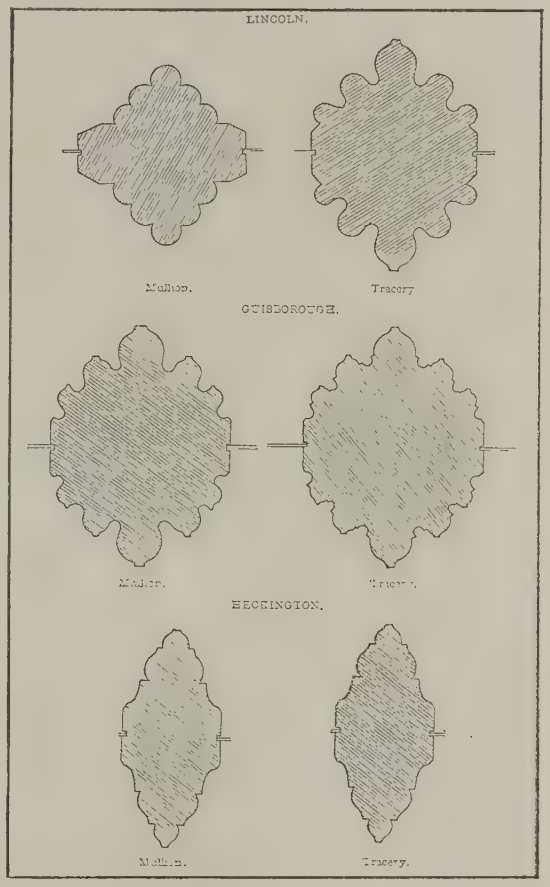
It is a singular fact that when the French, having lost the traditions of their own masoncraft, came to us for inspiration at the end of the fourteenth century, it was not the new Gloucester style with its rectilinear tracery, which by that time had overspread all England, that excited their admiration, but the work of the first half of the fourteenth century, of which Ely was one of the principal schools, which by now with us was out of fashion and obsolete. So it was when France in the sixteenth century went to Italy for inspiration; it was not the sixteenth-century Renaissance architecture of Rome and Venice that excited her enthusiasm, and which she copied, but the fifteenth-century Renaissance architecture of Florence. But when we say "copied," we mean no more than that the French borrowed elements and principles; these, however, they developed in a totally non-Italian fashion. They did not borrow the Strozzi or the Pitti palace; nothing could be more dissimilar than those palaces and the chateaux of Azay-le-Rideau, Chenonceaux, and Chambord. So it is with flamboyant window tracery. All the elements of flamboyant tracery are to be found in English windows as early as 1320; but when borrowed by the French, they were put together in a fashion which was non-English; they were recast into a new and original composition with a taste and elegance thoroughly French.[2] The two nations, starting from the same elements, arrived at quite different results. It is to be noted that the French Flamboyant, like the French Renaissance, has no French ancestor; now human beings and architectural styles do not come into existence without parentage; and if parents cannot be found at home, they must be looked for abroad. There is the fact too that if a style is indigenous, it will develop in different ways and at different speeds in different districts; thus in the thirteenth century there were three distinct schools of Gothic in England—the South-eastern, the Northern, and the

E. S. Howden: Aisle of Nave

[1] Huysmans, *The Cathedral*, 104.

[2] This is not to deny that we have in England windows, the tracery of which is flamboyant; such windows are, however, quite exceptional. In the vast majority of cases it would be as difficult to mistake a French window for an English one as to picture to oneself Ely choir or Beverley nave as French, or the transeptal façades of Limoges or Senlis as English.

Western; and in the twelfth century there were several distinct schools of Romanesque in France; viz., in Burgundy, Auvergne, Provence, Périgueux, Poitou, and Normandy. But French Flamboyant, like French Renaissance work, is much the same from one end of France to the other. It must be noted too how long and extensive and effective was the English occupation; we held at one time the greater part of France, including Paris itself. And it is just in the districts where the English occupation was longest and most effective that the earliest and most numerous and finest examples of flamboyant architecture occur. Take Normandy, with the collegiate of Abbeville and the fine church of Gisors; or Bordeaux, long English, which has the finest flamboyant work in the south-west of France, or Nantes cathedral, built in 1434 in the lifetime of Jeanne of Navarre, Duchess of Brittany, whose son, Duke John VI., had connections with England.[1] It may be objected that between countries at war with each other for a century artistic relations would not thrive or even exist. Facts tell a different story. Hundreds of French gentry and nobles were in captivity in England after Cressy and Poitiers, including King John; many of these must have seen and visited, and some no doubt admired and studied the buildings of the early fourteenth century, still fresh and fair. French sculptors came over to England to purchase alabaster; the French *maître d'œuvres* of Fécamp abbey in 1414 travelled with three companions to Chellaston, near Derby, to buy alabaster. The alabaster tomb of John V., Duke of Brittany, who died in 1399, was wrought in England by Thomas Colyn, Thomas Holewell, and Thomas Poppehowe, who took it over in 1408 and set it up in St. Pierre de Nantes. At Avignon in 1345 Jean of Paris copied the monument of Pope John XXII. from that of Edward II. at Gloucester; among those who worked on it was a *Johannes Anglicus* or *Englicus*. At St. Urbain de Troyes, where the earliest traces of flamboyant are alleged to exist, the *magister operis* again is a *Joannes Anglicus*. In Amiens cathedral one of the chapels was dedicated to *Sancta Maria Anglica*. Just as nowadays, people went to France to learn French, and we hear of young Englishmen living *en pension* in a French family in Amiens in the fifteenth century, perhaps in that street which bore the name of *Rue Englesque*. Alexandre de Bernevale was *magister operum* for the English king at Rouen;



E. S.

[1] Her second husband was our English king, Henry IV.

in 1417 he was staying in England; in 1418 he was put in charge of the works of St. Ouen, Rouen. Thomas Wyllemer, who was commissioned to do some work at St. Ouen in 1441, is known to have been an English architect. English influence may well then have been powerful in France in the early years of the fifteenth century, and have given her the lead she wanted when she set forth once more on her career as the nation of the greatest ecclesiastical architects in the world. From England she derived the original idea, but nothing more; French Flamboyant, as finally developed, is non-English; French Flamboyant does not exist outside France.[1]

E. S. Sleaford, Lincolnshire: North Aisle

Like the geometrical windows, those with flowing tracery may be divided into those with centrepieces and those without.

I. Of those with centrepieces the first group comprises windows in which the main framework consists of two or more ogee arches, which may intersect. Evidently, if two large ogee arches are put side by side, there is room between them for a large centrepiece; *e.g.*, the window in Sleaford aisle (625), the west windows of Cottingham, Yorkshire (623), and York minster (639), those of Beverley nave (636), Edingthorpe, Norfolk (632), and Nantwich (644).

II. In a second group with centrepieces the subdividing arches are pointed and detached; *e.g.*, Sleaford (620), Walcot (633), Lincolnshire, and Great Horwood, Bucks. (640). This is not a common design, owing to the difficulty of reconciling the simple curves of the subdividing arches with the compound curves of flowing tracery.

III. When the main subdividing arches are pointed, they are usually attached; *e.g.*, the east window of the aisle of

[1] The origin of French Flamboyant has been treated lucidly and convincingly by M. Camille Enlart in the *Bulletin Monumental* for 1906 and the *Bulletin Mensuel de l'Union Syndicale des Architectes Français*, 4th April 1908. See also the papers of M. Anthyme St. Paul in the *Bulletin Monumental*, Vol. lxx. p. 483, and of M. Enlart, p. 511. See also the paper of Comte Robert de Lasteyrie in the *Journal des Savants*, February 1908.

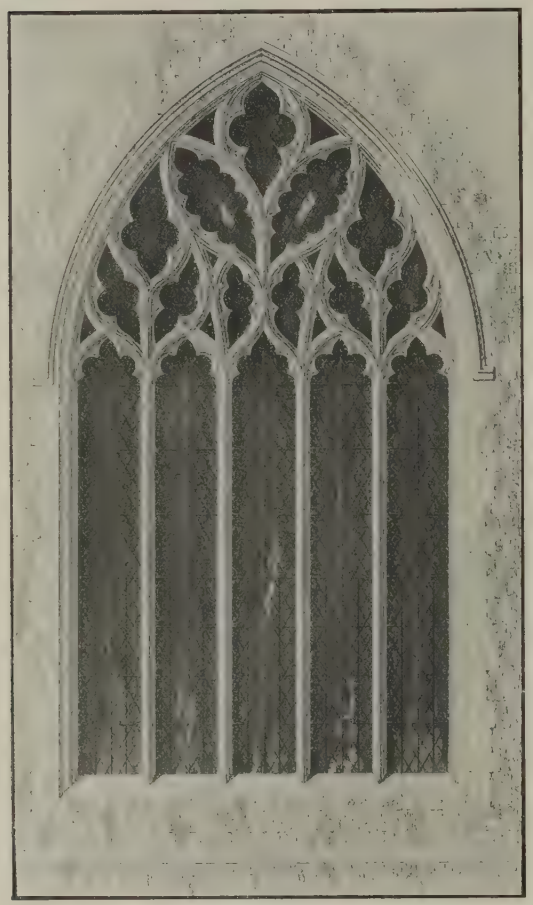
Hull chancel (624), and windows at Castle Ashby, Northants (637), Wymington, Bedford (637), and Scarborough (634).

The centrepieces in these three groups vary greatly. In early examples,

E. S. Sleaford Transept

e.g., Olney (695) and Wellingborough (591), the centrepiece may be a circle, filled in with geometrical or flowing tracery. Sometimes it is a *vesica piscis*, as at

Heckington (642) and Sleaford (621), and the great window of Carlisle.[1] Considering the passion for ogee openings, it might be expected that the *vesica piscis* would have an ogee arch at top and bottom; but the main arch of a window is seldom an ogee; normally, it is pointed; therefore, whenever the subdividing arches are ogees, the *vesica piscis*, though it has an inverted ogee arch below, will have a pointed arch above; of this the windows of Nantwich (644), Sleaford (625), and of Cottingham (623) are examples. The *vesica piscis* may be filled up either with geometrical or flowing tracery. At York the west window of the minster is very large, and there is room both for an ogeed *vesica piscis* at the top, and for a large heart-shaped variant, with two lobes, below it (639). Perhaps the most successful centrepiece is the stem and leaf, if the leaves are not set too horizontally; among the examples illustrated are windows in Beverley nave (636), Patrington (628), York (639), Sleaford (625), Ringstead (622), the "Bishop's Eye" at Lincoln (673), and the west window of Hedon (892). Occasionally a *roue tournante* occurs, *e.g.*, at Scarborough (634) and Carlisle (675); this is common in French work. Sometimes the centrepiece consists merely of a collection of odds and ends, as at Hull (624).



E. S. Ringstead, Northants

Windows without subdividing arches and without centrepieces also occur very frequently. By far the most common is a type with *reticulated*, *i.e.*, net-like tracery; *e.g.*, Ford, Sussex (630), Sutton Benger, Wiltshire (628), Milton abbey, Dorset, and Higham Ferrers (631). Though it looks so complicated and late, it is the earliest of all to appear; it occurs in the vestry of Merton College, Oxford, preparations to build which were being made in 1310, and in the Franciscan church in Reading, which was building in 1311. It had two recommendations. In the first place it was a glorification of the ogee arch; every aperture in it either containing an ogee arch, or part of one. All the complete patterns have an ogee arch

[1] Illustrated in *Gothic Architecture in England*, 128, 507.

at the top, and, below, an ogee arch inverted. Moreover, if any two be set side by side, it follows that the pattern above and between the two will also have an ogee arch. The second recommendation was that it could be set out with great ease. To take a simple example, that of the east window of Ford, Sussex (627, 630), which contains only three ogee openings: take a base AB as long as the window is wide; and from A and B draw the segments AK and BK; these are the sides of the window arch. Then divide AB at C, D into three equal parts, and bisect each of these at E, F, and G. From E, F, and G as centres describe the semicircles AHC, CID, and DJB. On these semicircles erect four circles with the same radii as the semicircles; on these four erect three more similar circles, and on these two more. Omit all parts of the circles outside the window arch, as well as any parts inside the window arch which are not wanted, and what will be left will be three complete ogee openings together with fragments of six others. It will be seen that all the completed openings have ogee arches both at top and bottom; and that if the course of the tracery bars be traced to the right or the left, *i.e.*, from A to K, from C to L, and from D to M, or from B to K, from D to N, and from C to P, they consist of alternating curve and countercurve. The undulatory, wavy form thus given to the tracery is well seen in the Sutton Benger window (628). Such a window, however, has grave defects; the imperfect *soufflets* are ugly in themselves, they are awkward to glaze, and they are useless to the glass-painter. To remedy this, the builder at Caldicot, Monmouth,[1] boldly omitted all the fragments of openings, letting the window head follow the wavy curves of the ogee patterns.

E. S. Cottingham, Yorkshire

It has been shewn by the diagrams that a reticulated window can be obtained

[1] Illustrated in *Gothic Architecture in England*, 487, from Freeman's *Windows*.

by rule and compass; but in later and better work, especially in French Flamboyant, the designer was not content with machine-made patterns; sometimes, but rarely, he depressed the ogee arches, *e.g.*, at Sutton Benger (628) and the Beverley reredos (629); more often he elongated them, adding elegance and grace,[1] as at Welwick, (664). In East Anglia a delightful variant of this window is common, in which each ogee opening contains another diminutive ogee opening attached to a stem; the stem is usually upright, as at Welwick and Old Walsingham, Norfolk, but sometimes inverted, as on the Holbeach door.[2] One of the finest examples of reticulated tracery is to be seen in the seven-light east window of Milton Abbey, Dorset, the tracery of which contains eighteen ogee quatrefoils. Reticulated tracery not only commenced early, but lingered late; good examples occur in Edington church, Wilts., which was begun in 1352 and finished in 1361.

E. S. Hull: Aisle of Chancel

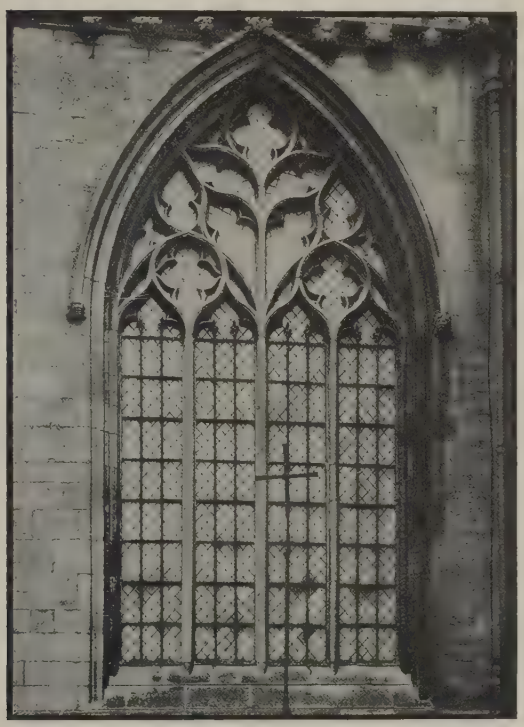
Flowing or curvilinear tracery is by no means easy to design; there is quite an interesting crop of failures, some of which are pointed out in the analysis below. In all traceried windows, except the earliest, there was always a tendency on the part of the mason to glorify his skill; one mason vying with another in economising material till attenuated mullions and tracery are produced fit only to be executed in wrought iron. In this we never went so far as the French; the lightness of much of the later French tracery, *e.g.*, at St. Urbain, Troyes, is simply amazing. Theoretically it was right enough not to use stout bars and tracery; for it was usual to build the jambs and window arch first, the mullions and tracery being inserted afterwards; the window arch was not dependent on them for support.[3] But though reason tells

[1] Note the unsymmetrical ogees in the Beverley reredos.

[2] The two latter are illustrated in *Gothic Architecture in England*, 480 and 583.

[3] There are exceptions. The mullions and tracery of the side windows of the choir of Bristol cathedral are bonded into the jambs and arch and were built with them; the great east window, however, was built in the usual way.

one that the tracery does not support the window arch, to the eye it seems to do so; and the eye has to be satisfied.[1] For similar reasons the eye objects to curves that run somewhat horizontally or even downward, *e.g.*, at Edington (641), Cottingham (623), and Lichfield choir (768); to support the window arch they should run as vertically as possible, *e.g.*, Patrington nave (645); that is the secret of the excellence of French flamboyant tracery; in the best examples the chief curves flicker upward like the flame of a candle. And there is yet another value in verticality



G. G. B. Sleaford

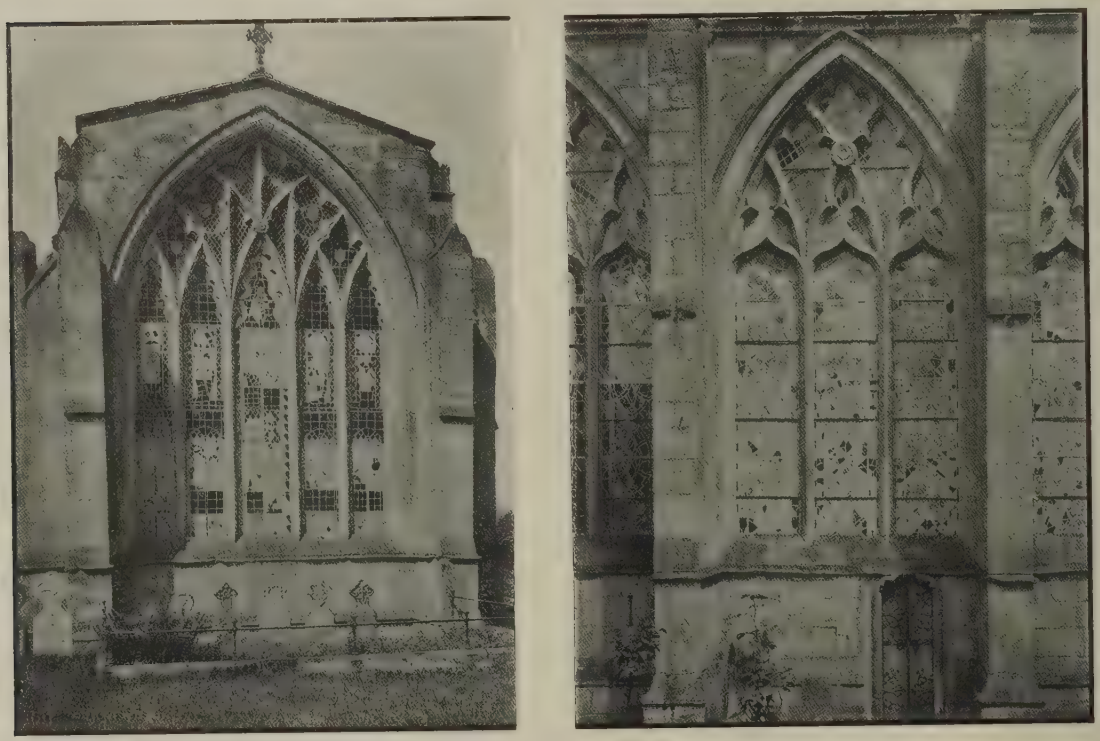
Sleaford

of curve; it is that if the bars approach the vertical, so will the openings between them; and in a window so designed the openings will range themselves into tiers of pretty niches, admirably adapted to receive a row of personages from the hands of that important individual, the glass-painter. To propitiate this individual again, and the glazier also, it is desirable to get rid as far as possible of such awkward openings as those which fringe the window arch at Higham Ferrers (631); in the best tracery this was to a large extent accomplished.

[1] Contrast the thin tracery of the window in Patrington nave (645) with the satisfactory massiveness of that in the windows at Long Wittenham, Berks. (601), and Lincoln cloister (599).

Another important matter was to minimise the risk of damage caused by affording lodgment for rain, as was the case in the lower part of geometrical circles, trefoils, and the like encircled by a roll molding. By substituting a hollow chamfer this risk was done away with; *e.g.*, in the geometrical tracery of Long Wittenham (601) and the flowing tracery of Ford (630).

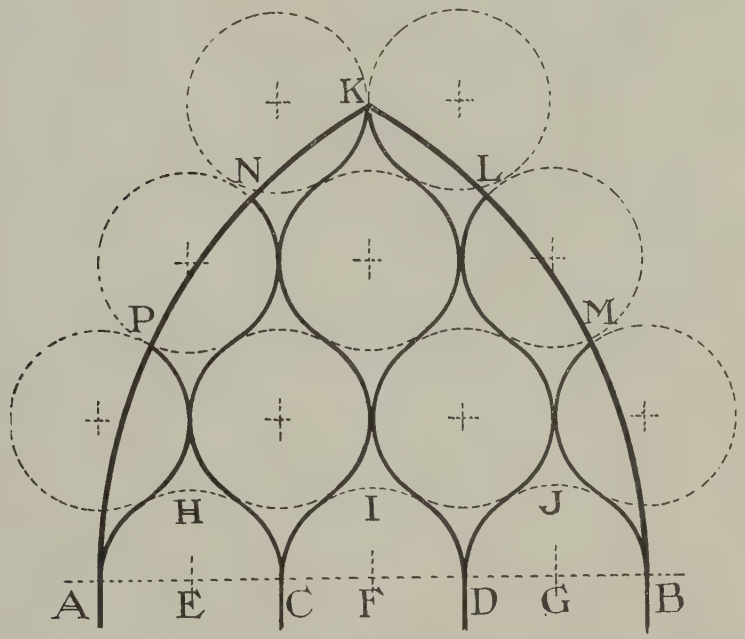
It is very remarkable with what reticence flowing tracery was designed in England when intended to be used in windows. This comes out in more than



F. H. C. Norbury, Derbyshire

one way. In the first place, when a row of windows with flowing tracery was inserted in an aisle or clerestory, as a rule the design was a repeat in the whole series, just as it had almost always been in a row of geometrical windows. It is true that the windows of Patrington chancel alternate, and that all the windows differ down Exeter nave (each being repeated, however, on the opposite side of the church), and that all the four side windows of the Latin chapel in Oxford cathedral vary in design, but these are exceptions. Secondly, such tracery design as was actually admitted into windows was usually of a sober character; the exuberance

of French Flamboyant is rarely found.[1] It is by no means that we could not, but that we would not, employ over-elaborated window tracery. That we could design it by 1340 quite as well as any Frenchman did a century later is clear from the tracery that we employed where we considered the material suitable. At the back of the Beverley reredos (629) is a design as flamboyant and successful as anything in France; in a window the mason would have been under the thumb of the glazier and glass-painter; but here it was panelling on a solid wall and concerned neither of them. So also neither of them could raise a protest if flamboyant tracery were



W. E. Reticulated Tracery

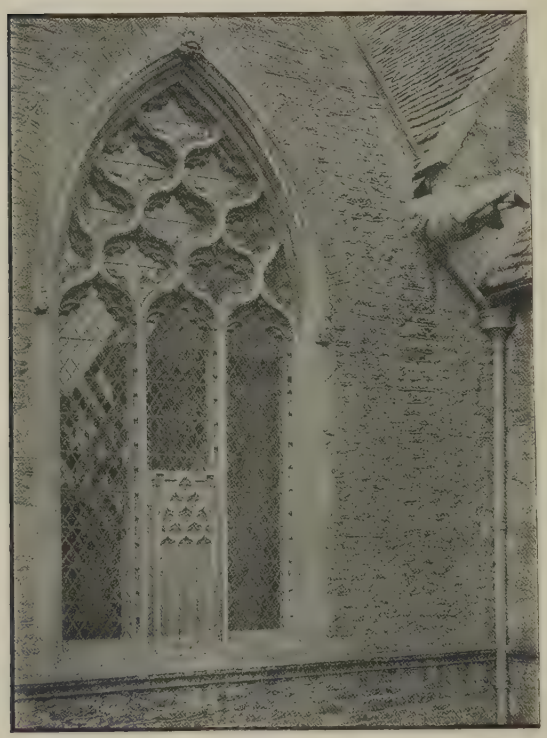
executed in wood; consequently the carver let himself go, and indulged in a riot of curve and countercurve on the doors of Boston church; and yet more in the extraordinary stallwork in Lancaster church, worthy of the wildest flights of a fifteenth-century French artist, but executed in England in the second quarter of the fourteenth century (648).[2]

[1] There are a few examples of it; *e.g.*, Patrington nave and the extraordinary west window of Snettisham, Norfolk (649), illustrated in *Gothic Architecture in England*, 481.

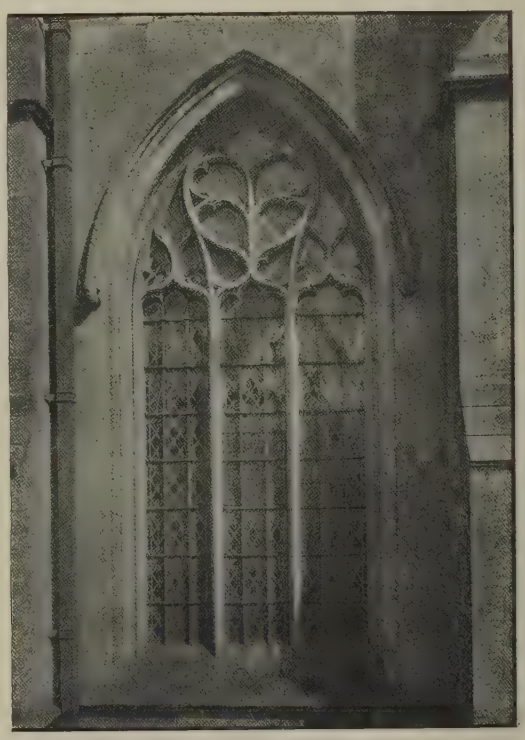
[2] A Boston door is illustrated in *Gothic Architecture in England*, 129; and five illustrations from Lancaster are given in the writer's *Stalls and Tabernacle Work in English Churches*, 39-42.

ANALYSIS OF WINDOWS WITH FLOWING TRACERY

Sleaford: North Aisle (620).—This is a window of four lights; the main structure consists of two detached pointed arches—a survival of geometrical design—carrying a leaf and stem centrepiece. Curvilinear "falchions" and "daggers" abound. The four lower lights have ogee heads and are trifoliated. The mullions are without shafts. The window arch is in one order; "the mullions may be said to contain a double order of moldings, yet both



F. H. C Sutton Benger, Wilts.



F. H. C. Patrington, Yorkshire

orders follow all the ramifications of the tracery; an arrangement not uncommon in the flamboyant style, but one that is foreign to English decorated windows, in which the separation of the subordinate moldings is so characteristic a feature. The window is 23 ft. 6 in. high and 11 ft. 6 in. broad." The other window from the same aisle differs only in the cusping of the topmost leaf (625). In the third window two ogee arches are substituted for two detached pointed arches, and the stem and leaf pattern is employed both in these and in the centrepiece. The mullions have molded capitals but no bases; the jambs have molded capitals and bases (625).

Ringstead, Northants: East Window of the Chancel (622).—Though there are five lights, the central light is treated like the rest, except that they are pointed, while it is an ogee.

A remarkable and successful variation is made in current design; instead of having two attached pointed arches supporting a centrepiece, the inner curve of each arch is reflexed into an ogee. Note the large, numerous, and effective "falchions." The whole design, with the exception of the pointing of four lower lights, is of well-developed flamboyant character. The tracery is of one order only. The window is 17 ft. 6 in. high and 9 ft. 6 in. wide.

Cottingham, Yorkshire: West Window of Nave (623).—The main structure consists of two ogee arches, each embracing two lights, and supporting as a centrepiece an ogee *vesica piscis* pointed above. The lower lights are trifoliated, and each pair is inscribed in

F. H. C. Beverley Minster: Back of Reredos

a depressed ogee arch, above which are a pair of "falchions" and a "dagger." In this window no trace of geometrical design remains, except in the segmental heads of the lower lights. The defect in it is the horizontal and even downward direction given to many of the curves, especially in the "crab's claw" arrangement of the centrepiece. There are two orders of moldings in the tracery and one in the window arch. The window is 22 ft. 6 in. high and 11 ft. 9 in. wide.

Hull: East Window of Chancel Aisle of Holy Trinity Church (624).—The window has five lights, of which the central light is treated separately. The main structure consists of two attached pointed arches with a centrepiece between. Each outer pair of lights has

a cinquefoiled segmental head, and the two are inscribed in a depressed ogee arch; in the head of each attached arch is a stem and leaf ornament, beneath which is a pair of "falchions." The central light has an ogee head. Above it is a mixed lot of curvilinear trefoils and quatrefoils. Here, as at Cottingham, geometrical design appears only in the segmental heads of four lower lights. The tracery has two orders of moldings, the window arch but one. The window is 30 ft. 3 in. high and 18 ft. 6 in. wide.

Sleaford: North Transept (621).—"This beautiful example of pure flowing tracery of the most perfect kind is perhaps," says Mr Sharpe, "as a six-light window, unrivalled." The six lower lights are inscribed in three detached pointed arches, four of whose curves are reflexed, while the other two run their heads into the window arch and come to an abrupt end. The four reflexed curves, uniting, form two great ogee arches, which unfortunately are unsymmetrical, as also is the hollow-sided lozenge in the head of each. Had the centrepiece been made of the same width as the central light, the chief fault in this fine window would have been remedied. The curves of the two great ogee arches are again reflexed and produce a *vesica piscis*. The three detached pointed arches have each a small stem and leaf design in the head. The smaller apertures consist of straight "daggers" and curved "falchions" with some small trefoils. In the centrepiece of the *vesica piscis* two quatrefoils have simple geometrical curves and are incongruous. As in the early geometrical windows, the mullions have shafts with capitals and bases. The whole is an attempt to accommodate flowing tracery to an antiquated geometrical design. The tracery and window arch have moldings in two orders. The window is 33 ft. 8 in. high and 18 ft. wide.

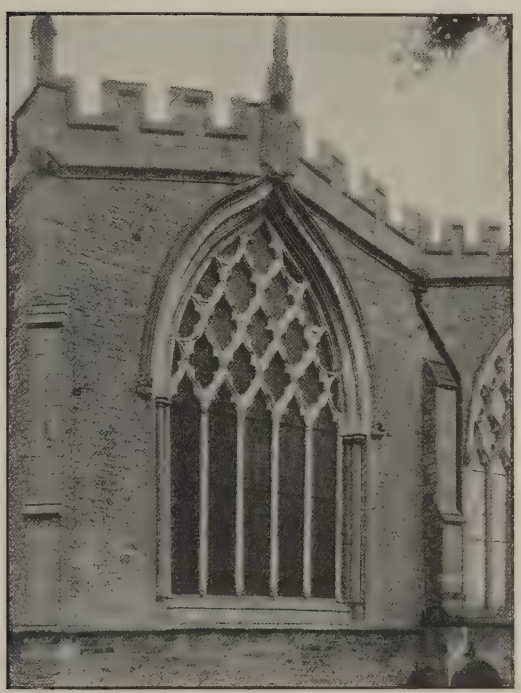
F. B. Ford, Sussex

Norbury, Derbyshire: South Window of Chancel (626).—This is a window of three lights, in which, as in the Grantham window (609), the mullions intersect and are continued into the window arch. The three lower lights are spanned by a depressed ogee arch at the spring of the window arch, and in the head of each is a trefoil with ogee lobes; the depressed ogee arch being simply the bottom of this trefoil. Between the intersecting mullions are three elongated "daggers." The point of intersection of the mullions is curiously masked with a rosette. The moldings of the tracery and the window arch are of one order.

Norbury, Derbyshire: East Window of Chancel.—This is a window of five lights with intersecting mullions. In this way there are produced two arches, which are pointed and attached, and contain the two outer lights on either side. Also the three outer lights (the central one being used twice) are inscribed in attached pointed arches. The cusping

of the lower lights produces seven lobes. The peculiarity of the design consists in the presence of three upright bars in the tracery, making havoc of the tracery. Both the Norbury windows are more original than successful, and are almost wholly geometrical in feeling. The window arch and tracery have but one order of moldings. This chancel is famous for its stained glass, coeval with the windows.

Welwick, Yorkshire (664).—In this fine window is a development of the reticulated designs of Higham Ferrers (631) and Sutton Benger (628); the difference being that, as at Old Walsingham and the Holbeach door, a stem is inserted carrying a quatrefoil. With



F. B. Higham Ferrers, Northants

F. B. Orford, Suffolk

its elongated flowing curves it would well find its way into any catalogue of flamboyant tracery. Money was left for this window in 1358.

Beverley Minster: Back of Reredos (629).—A still higher development of reticulated design is seen here. There are four lower lights—if we may so term them—each of them is an ogee arch, and in each is inscribed a depressed and cinquefoiled ogee arch; between the two latter arches is a pair of "falchions." The four lower lights support three ogee patterns, which are treated with delightful freedom, the central one being symmetrical, the side ones not. In each of the side ones is a stem carrying two cusped circles—this bit of geometrical design is a flaw—the central pattern contains one inverted and one vertical "dagger" and two "falchions." After this, the ogee patterns flicker upward in a maze of "falchions," with

a central "dagger," and the "falchions" again are split up into minor "falchions" on a lower plane of tracery. In this tracery the consummate artist who designed it realised fully and completely the principle of the continuous curve; there is no stop or break of curve anywhere; a mouse might run over it up and down and sideways and across for a month and never take the same path. Elongate the patterns into greater slenderness and grace, and there would be a composition worthy of the very finest fifteenth-century flamboyant of France. The Beverley reredos was paid for in 1334.

Edingthorpe, Norfolk.—A window with two ogee-headed lights, both cinquefoiled, supporting a centrepiece pointed above and ogee below. In it is inscribed a quatrefoil with double foliation. Quite a little gem (632).

Edingthorpe, Norfolk

Orford, Suffolk: South Aisle of Nave (631).—A singularly charming combination of geometrical and flowing tracery, consisting of three trifoliated ogee arches supporting three cusped circles. Note how the circumference of each lower circle and the ogee heads of the lights melt into each other, and the double ogee or "bracket" form of the side bars in the tracery.

Olney, Bucks., on the right.—This is a window of two tall outer lights, and a lower central light; the three lights support a centrepiece. Each outer light is spanned by a pointed and cinquefoiled false arch supporting a long-lobed pointed trefoil, the superposition of which on a pointed arch converts it into an ogee arch. The central light also is pointed and cinquefoiled. The centrepiece is a circle containing three curvilinear triangles, in each of which is inscribed Kentish tracery, consisting of a spiked trefoil. This window also is of exceptional and successful design. The lower part of the window is designed for one or more shutters (695).

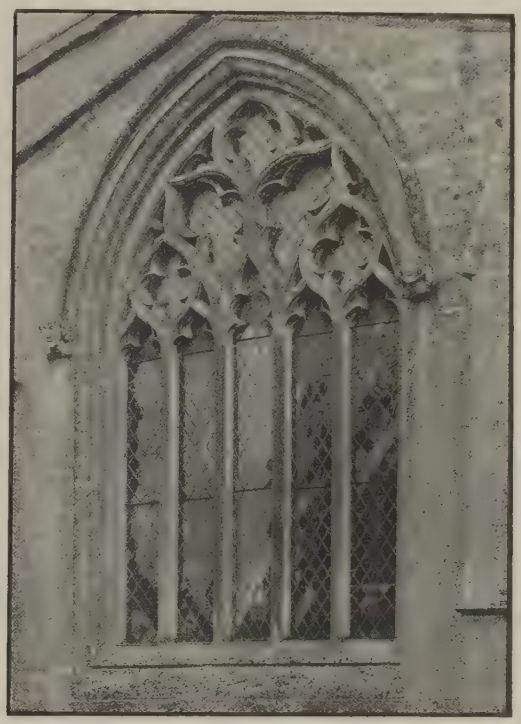
Olney, Bucks., on the left (695).—This window contains three tall pointed arches, of which the outer ones are attached; in each of the latter is inscribed a cinquefoiled lancet supporting a narrow cinquefoiled vesica. In the head of the central of the tall pointed arches is a quatrefoiled lozenge; this also forms part of a centrepiece of four members, the other three being cinquefoiled vesicas. The tracery is of original and unusual character. It is as a rule in the parish churches of Lincolnshire and the Midlands that the finest flowing tracery is found, rather than in cathedrals such as Ely, Lichfield, Bristol, and Wells.

Wingfield, Suffolk (633).—This is a window of three lights, each of which has a cinquefoiled ogee head. The three lights carry two patterns, each of which is ogee below and semicircular above. Each of the two patterns contains four quatrefoils. Between and above the two patterns is another small quatrefoil.

Pershore Abbey: South Aisle of Choir (635).—This is a five-light window, whose mullions rise vertically up to the window arch. At graduated distances each opening is spanned by a trifoliated ogee arch, and four of these arches have *supermullions*. From the emphasis given to the vertical lines of the composition it looks as if the window is not earlier than the middle of the fourteenth century.

Carlisle Cathedral (675).—The tracery consists simply of three revolving "falchions," forming a *roue tournante*. In the drawing the joints have been thickened to shew the construction. It will be seen that the circumference of the circle is constructed out of six

G. G. B. Wingfield, Suffolk



G. G. B. Walcot, Lincolnshire

blocks, the longer of which contain also a stump of tracery. Out of a seventh block is cut the remaining portions of the three curved bars.

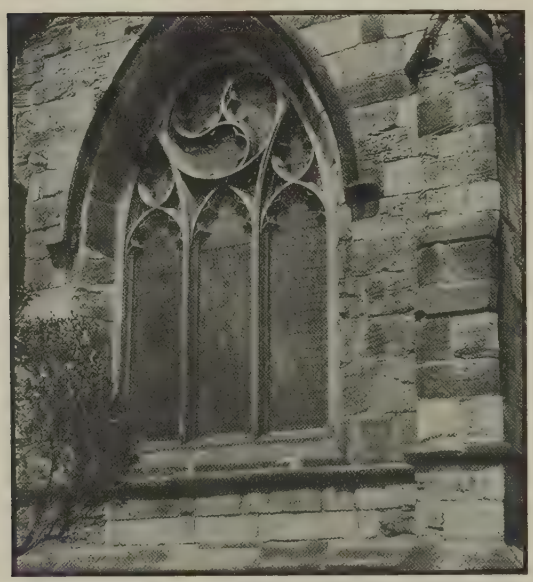
Beverley Minster: South Aisle of Nave (636).—These windows have two bold ogee arches supporting a stem and leaf ornament inscribed in a *vesica piscis* of ogee form below. The four lower lights have pointed and cinquefoiled heads; and in the window to the left each pair carries a *roue tournante* inscribed in a circle, which is a correction of the geometrical design in the earlier window to the right, where the little circle contains a quatrefoil. The distinction between the two orders of tracery is strongly emphasised. A very successful design.

The same design appears in the windows of the *north aisle of the nave* (636), except that

the leaf and stem of the centrepiece is abandoned for an arrangement of "falchions" and quatrefoils.

Patrington, Yorkshire: Side Window of Chancel (628).—This successful design affiliates itself in its leaf and stem centrepiece to that of the windows of the south aisle of Beverley minster, and in its treatment of the attached side arches to that of the Ringstead window (622). There are no simple geometrical curves.

Walcot, Lincolnshire: East Window (633).—This is a window of five ogee-headed lights, arranged 2, 1, 2. The outer pairs are trifoliated, and are disposed in pointed detached arches, each of which contains in its head a quatrefoil ogeed below. The central light is taller than the rest, and is cinquefoliated. Between its head and the window arch are two large "falchions," which support a quatrefoiled *vesica*, ogeed below. The combination of pointed and ogee arches is managed with unusual success.



F. B. Scarborough, Yorkshire

Wymington, Bedford: East Window of Chancel (637).—The window has five lights, of which the central one is broader and taller and is treated separately. The main structure consists of two attached pointed arches with a stem and leaf centrepiece between. Also in the head of each attached arch is another stem and leaves. The outer lights have pointed and trifoliated heads; the central light is loftier, has an ogee head, and is cinquefoliated. But for an unfortunate survival of geometrical design in the presence of two cusped circles, it is quite a successful design. In the church is the brass of the founder, who died in 1391.[1]

Castle Ashby, Northants (637).—This is a sister window to that at Wymington; the cusped circles which in the latter were in the centrepiece, are now in the side lights. Note the large inverted "dagger" in each attached arch. All three lower lights are cinquefoliated. The defect of the window is the depression of the curves in the central portion.

Chester Cathedral: South Aisle of Nave (on the left) (638).—The framework consists of a pair of ogee arches supporting a vesica, pointed above and ogee below. Each ogee arch circumscribes a pair of pointed and cinquefoliated arches. The centrepiece is a vesica containing two "daggers" and four "falchions." Outside each ogee arch is a quatrefoiled circle inside a "falchion"; the introduction of this circle among the flowing curves of the rest of the tracery is incongruous; as it is also in the Beverley reredos (629) and Carlisle east window.

Chester Cathedral: South Aisle of Nave (638), *on the right.*—The framework consists

[1] The brass is that of a civilian, John Curteys, mayor of the staple of Calais, and states that he and his wife *istam ecclesiam de novo construxerunt.* But unless he was a very old man in 1391, windows of this type can hardly be attributed to him. At any rate the chancel was the rector's province, and is more likely to have been built by one of the Nowers family, which presented its younger sons at least twice to the rectory in the first half of the fourteenth century. Two rectors of Wymington died in 1349.—A. H. T

of two pointed and attached arches carrying a centrepiece. In each pointed arch is inscribed a pair of detached and cinquefoliated lancets, which support a centrepiece made up of two "daggers" and two "quatrefoils." The main centrepiece is uninteresting, being also made up of two "daggers" and two "falchions."

York Minster: West Window of Nave (639).—The designing of this window is facilitated by giving it an even number of lights. The main framework consists of two ogee arches supporting a double-lobed ogee centrepiece, which again supports an ogee *vesica piscis*. The two centrepieces contain three leaf and stem ornaments, one with a vertical, the other two with curved stems; there are two more flanking the lower centrepiece. Each ogee arch contains two detached pointed arches, and each of these contains two lower lights. A somewhat monotonous design. The glass is known to have been inserted in 1338.

Lincoln Minster: South Window of South Central Transept (673).—This lovely window is a glorification of the leaf and stem design, which is repeated again and again. There are four unfortunate horizontal curves. The "Bishop's Eye"—the Bishop's palace is on the other side of the road—was probably designed soon after the death of Bishop Dalderby in 1320; the lancets below may be *c.* 1210.

F. R. L. Pershore, Worcester

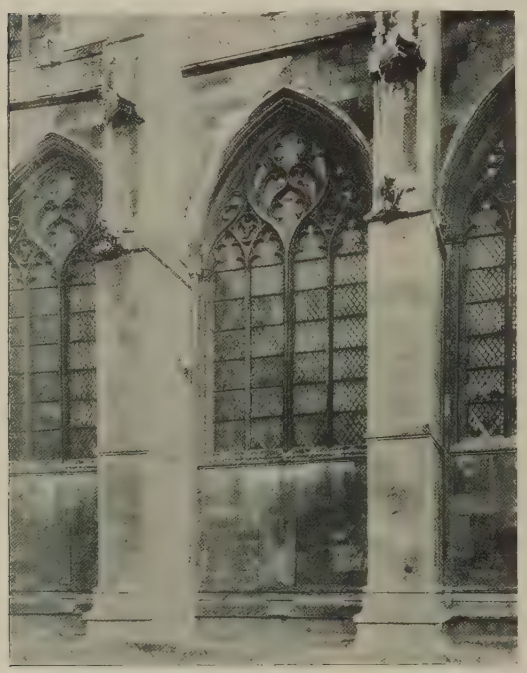
Great Horwood, Bucks. (640).—The framework consists of a pair of pointed and detached arches supporting a leaf and stem centrepiece. In each of the above arches is inscribed a pair of lower lights with segmental cinquefoliated heads, which are inscribed in a depressed ogee arch. The space between this and the pointed arch is filled in with a pointed quatrefoil and two "falchions." At the top of the centrepiece is a broad "dagger"; below are six "falchions"; outside each pointed arch is an uncusped "falchion." The juxtaposition of ogee, pointed, and segmental arches is managed with much skill.

Edington, Wilts.: West Window of Aisle (641).—This is a window of two pointed lights, with double foliation, the lobes of the trifoliation having secondary cusps. The centrepiece is obtained by welding together two ogee arches, the bottom one inverted. In this centrepiece, which has an ogee arch from whatever direction it is viewed, are inscribed four quatrefoils. The west end of the church was built *c.* 1360.

Helpringham, Lincolnshire: South Aisle of Nave (642).—The framework consists of two *intersecting* ogee arches, in which are inscribed three lower lights, pointed and cinquefoliated. This window, with its vertical curves, might pass muster as flamboyant.

Heckington, Lincolnshire (642).—This is the east window of one of the noblest of a series of fourteenth-century churches in Mid-Lincolnshire unrivalled in England. It was built no doubt by the wealthy rector, Richard de Potesgrave, who held the living from 1308

onwards for many years, and whose tomb is in the chancel.[1] The difficulty arising from the fact that it has seven lights is met by grouping them in two, three, and two lights. The main structure consists of three detached pointed arches, whose curves are reflexed, so as to form the centrepiece, a *vesica piscis*, containing a stem and leaf pattern. Unfortunately, quite unintentionally, the reflexed curves produce two large intersecting ogee arches, each with one leg short, and one leg long. The same mistake is made in the window of the transept, and in the great east window of Selby choir (643). The minor openings are filled with "daggers" and "falchions." The tracery and window arch have two orders of moldings.



F B. Beverley Minster: North Nave

Beverley Minster: South Nave

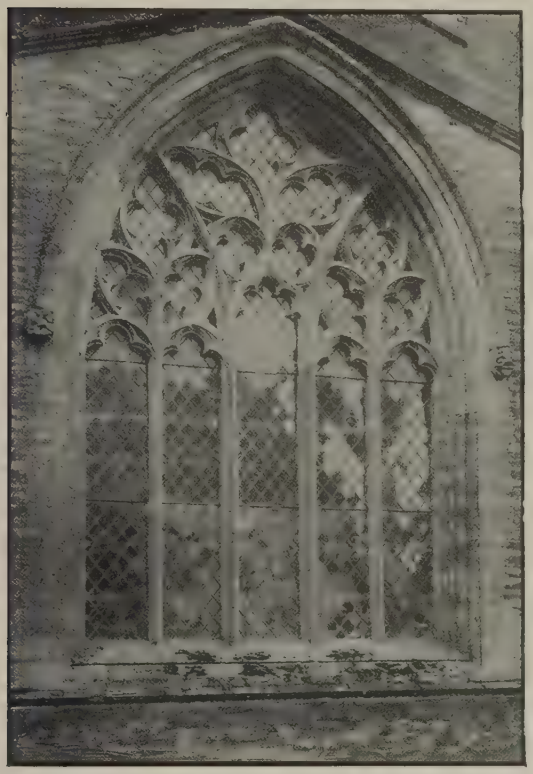
The mullions have shafts with capitals and bases, and are of similar design to those of the Angel choir at Lincoln (587). The window is 35 ft. 9 in. high and 19 ft. 1 in. broad.

Nantwich, Cheshire: South Aisle (644).—The framework consists of a pair of ogee arches carrying a centrepiece. In each ogee arch is inscribed a pair of ogee lower lights, which, by exception, are trifoliated. The centrepiece is a vesica pointed above, ogee below: above

[1] He was presented by letters patent, 8th March, 2 Edw. II., *i.e.*, 1308-9: the presentation fell to the Crown by reason of the voidance of Bardney abbey, the true patrons. He was presented to the church of St. Mellion, Cornwall (near Saltash), 21st June 1309, and is mentioned as parson of Byfleet, Surrey, in the same year. There can be no doubt that he paid for the chancel at Heckington, which fell within his legal province as rector. He died, I think, in 1345: the church was appropriated to Bardney in that year. His successor seems to have died in 1349: the appropriation was then effected, and the first vicar instituted.—A. H. T.

is a stem with three leaves; below are two "falchions" and a "dagger." Note the crocketed pediment and compare the windows of Wells chapter house (590) and Wellingborough (591).

Patrington, Yorkshire: Nave (645).—This is a window of five lights, arranged as 2, 1, 2. Each pair of side lights is inscribed in an arch which commences as a pointed arch, but whose inner side reverses its curve and swings round towards the apex of the window; it should be compared with the window at Ringstead (622); the tracery of each arch consists of one complete and two truncated ogee patterns, which are surmounted by



F B. Wymington, Bedfordshire

G. G. B. Castle Ashby, Northants

three "falchions." The tall central light runs up in a stem and leaf pattern. The transom, as at Howden (1), may have been added later.

Over, Cambridgeshire: South Aisle of Nave (646).—Usually the tracery of a window commences at the level of the spring of the window arch; but the arch is here segmental, to get more headway for the window and more light; so the tracery starts lower down. It is recorded in the *Architectural Topography of Cambridgeshire* that "these windows have arcades over them." As a matter of fact the window, as at Helpringham, has three pointed lower lights inscribed in two intersecting ogee arches. Moreover, the inner curve of each

of the outer lower lights is reflexed, and runs up to one of the ends of the segmental arch. In this way are produced, not "arcades" upside down, but three curvilinear triangles.

Bloxham, Oxon. (647).—This is the upper part of the west window of the north aisle. The framework consists of two ogee arches supporting a circular centrepiece. The mutilated carvings surrounding the head of the Saviour seem to have been the symbols of the Evangelists.—F. T. S. H.

Hawkhurst, Kent: East Window (650).—This is a window of exceptional design; it has five lights, arranged as 2, 1, 2. The main framework consists of two large ogee arches

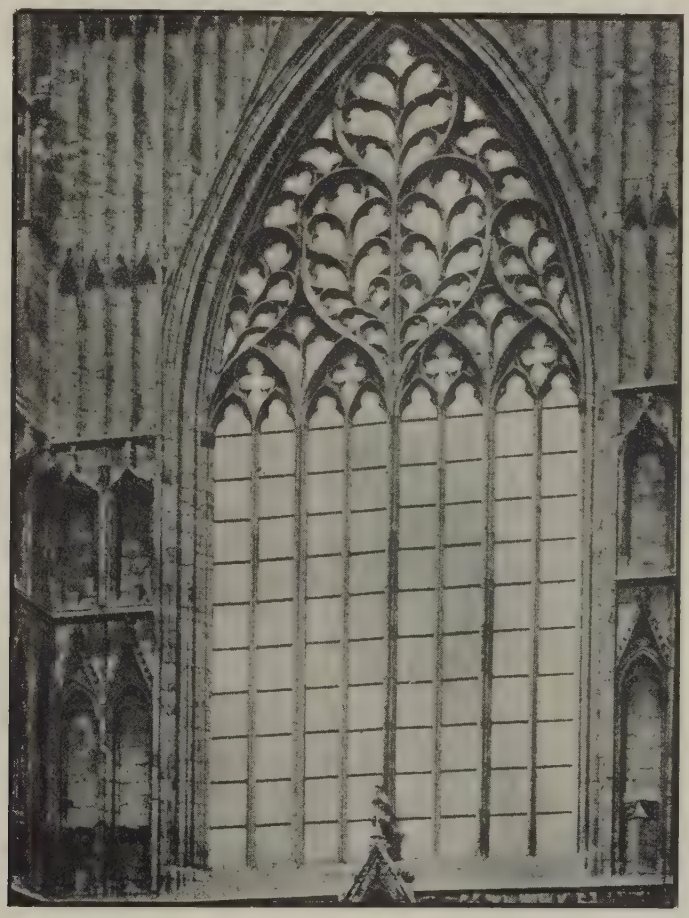
F. H. C. Chester Cathedral: South Aisle of Nave

with a small and lower ogee arch between them; the centrepiece is a great circle truncated to leave headway for the central light. The tracery of the centrepiece consists of "daggers" and quatrefoils.

The window of the south aisle has reticulated tracery; that of the north aisle has rectilinear tracery with supermullions.

Ely Choir (575).—The *aisle* windows have four lower lights, of which the two central are the highest; they have ogee heads and are cinquefoliated. The centrepiece is small and consists of a quatrefoil; it is flanked by "falchions." The *triforium* windows have two attached pointed arches, each of which contains three "daggers"; the centrepiece also is

a "dagger." The *clerestory* windows have two attached pointed arches. Each pair of lower lights is inscribed in a depressed ogee arch; in the head of each attached arch is a quatrefoil, below which is a pair of "falchions." The centrepiece between the two detached arches is filled up with three quatrefoils and a dagger. All the above are correct and uninteresting; far more charming is the design of the *triforium arcade*, the centrepiece of which is a



F B York Minster: West Window

large quatrefoil composed of four depressed ogee arches. Compare the Edington window (641).

Wells Presbytery.—The tracery of the aisle window (763) has two *intersecting* ogee arches supporting an octofoiled vesica, flanked by similar curved vesicas. Each ogee arch circumscribes a pair of pointed lights, which are *trifoliated.*

The clerestory window on the right of the drawing of the interior (763) has three pointed

and cinquefoiled ogee lights surmounted by a compound centrepiece of ogee patterns, of which the upper one is wholly, and the lower ones partially, uncusped.

Lichfield Clerestory (768).—This window has five lights arranged as 2, 1, 2. Each pair of outer lights is inscribed in a pointed and attached arch, which is spanned below by an ogee false arch. This ogee arch supports a vesica, two trefoils, and two "falchions." The five lower lights are cinquefoiled. The centrepiece consists of radiating vesicas, all quatrefoiled. The remodelling of the choir and presbytery took place between 1329 and 1363; the windows are probably late in the period.

G. G. B. Great Horwood, Bucks

Bristol Cathedral: *East Window* (414).—This is a window of nine lights, arranged as 3, 3, 3. The framework consists of three arches, of which the outer are pointed and attached, and the middle one four-centred; these support a sprawling centrepiece, somewhat similar to that in the Wells clerestory (763). The pointed arches are filled with ogee patterns, each containing a stem and leaf pattern; compare Welwick (664). The four-centred arch contains an independent window, divided, like the aisle-windows (398), into two parts by an elaborate transom. From the heraldry in the glass, much of which remains, all the three eastern windows seem to have been put up between 1312 and 1322.

In all the windows which have been analysed above, whether into geometrical or flowing tracery, it has been attempted to shew how the builder got at his design on paper. But when he went on to carry it out in stone, a different set of factors came in, viz.: constructional ones. He had to consider not merely whether the design was elegant, but what was the best way of ensuring the stability of his tracery. Frequently the two factors gave the same result; *e.g.*, in the windows of Raunds, Hull aisle, Sleaford transept and aisle (620). But this was by no means always so. For if the lower lights of the five windows be compared, it will be seen that in the above four none of the lower lights have primary moldings; which, however, appear in all the lower lights of the window in Hull transept and one of that at Fishtoft. It is evident that the mason thought himself at liberty to depart when he chose from the logical disposition of the two or three orders of moldings. The same contempt for logic is seen in the refusal to be bound by the logical correlation of the plan of the pier with the orders of the arch and vault.

CHAPTER IX (*continued*)

RECTILINEAR TRACERY

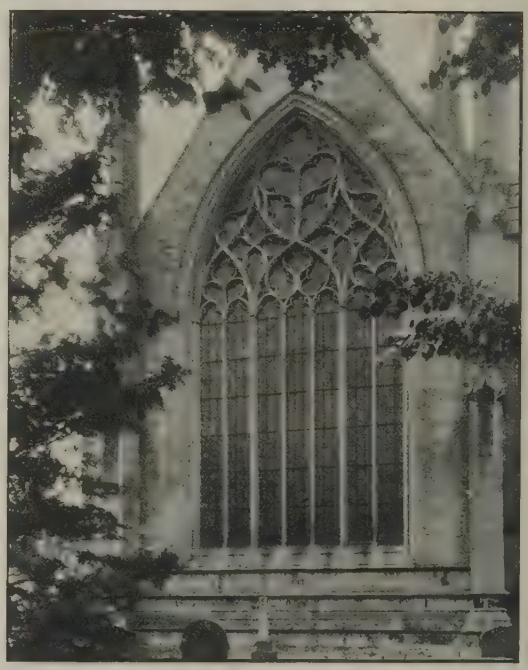
IN the history of the English mediæval window four periods demarcate themselves clearly. The first is that of the single light, whether round-headed or lancet. The second is that of the grouped lancet. This may be seen in the lower stages and clerestories of Salisbury; while in the upper stories of the façades the grouped lancets are transforming themselves into elementary plate or bar tracery; this cathedral was begun in 1220 and finished in 1266 (943). In Ely cathedral the presbytery of 1235-1252 had nothing but grouped lancets; those in the central part of the east end remain, those in the north and south aisles of the presbytery were torn out and replaced by large traceried windows in the fourteenth century (574).[1] The third period is that of the traceried window, whether the tracery be geometrical or flowing. The great monument of the early part of the geometrical period, setting aside Westminster as of alien design, is Lincoln retro-choir (784). This was begun about 1256, and since St. Hugh's remains were translated to a new shrine in it in 1280, it was probably finished structurally in that year. When this noble work was complete, the lighting problem, which had so long harassed the mediæval builder, was completely solved.

F. H. C. Edington, Wilts.: West End

[1] Mr Sharpe's drawing gives a restoration of the original windows: in all the elevations of internal and external bays he draws the church as he conceives it to have been originally built without alterations made later.

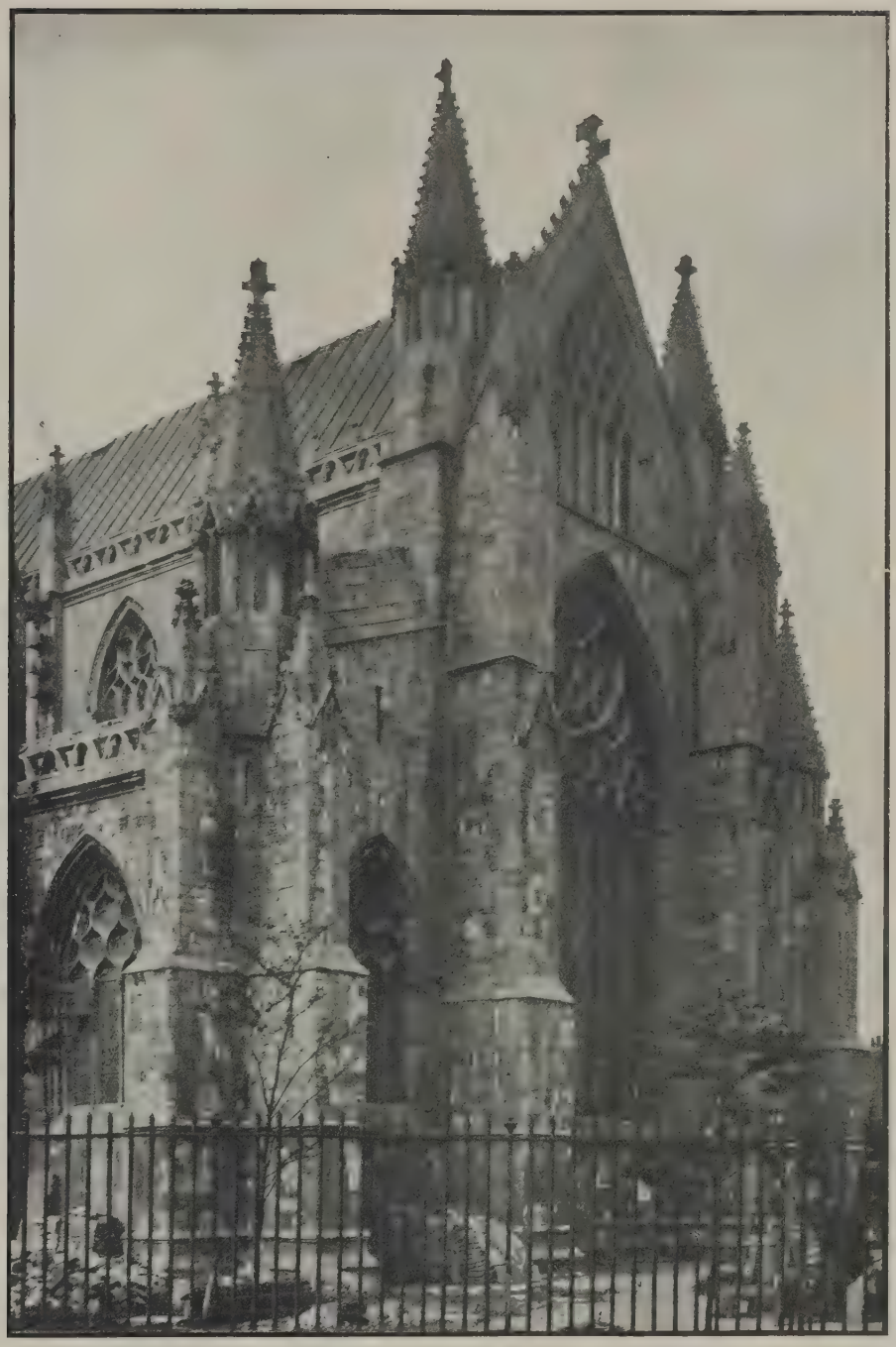
Lincoln retro-choir is thoroughly well lighted to north and south by large windows in the aisles and clerestories; it also receives a flood of light from the great window which occupies its eastern wall. Moreover, the plan of the greater English churches had now been changed; there was seldom now, as at Salisbury, a long low Lady chapel east of the presbytery; and the eastern wall of the presbytery was no longer pierced merely by small windows high above the arches leading into the Lady chapel, but by a window descending nearly to the ground (643). Thus at Lincoln so early as *c.* 1256–*c.* 1280, at

H. H. Helpringham, Lincolnshire



F. B. Heckington, Lincolnshire

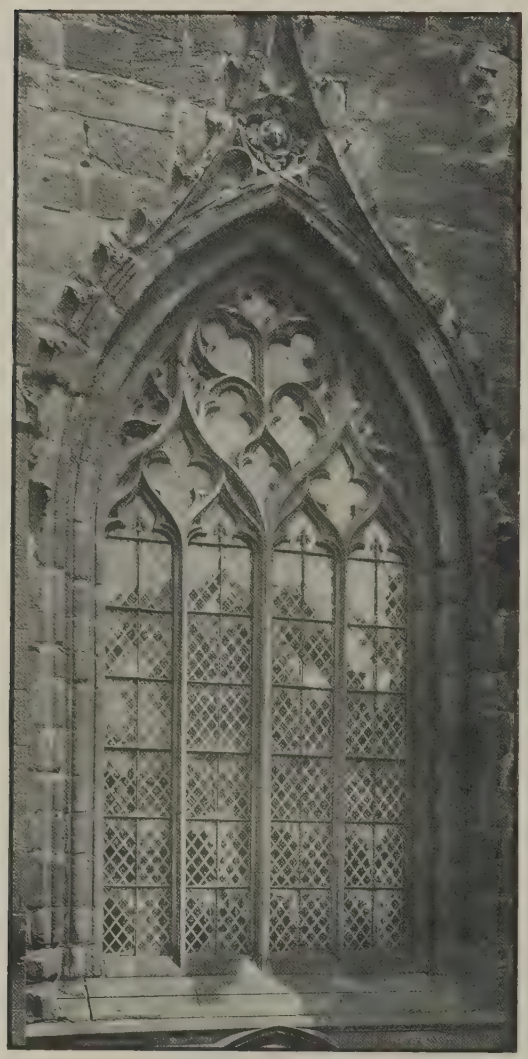
Guisborough, Selby, and elsewhere a little later, there was enough light and more than enough. At this point, therefore, the history of the mediæval window might have ended. In France, as we have seen, for a long period to a large extent it did end; big windows of simple geometrical design provided all the light desirable, and continued in use with hardly a change. In England, on the other hand, the development of the window went on just the same as if the lighting problem were still unsolved; and the French also, in later days, following our lead, put forth their artistic powers in a development of their own. Since then the lighting problem had been solved early in the thirteenth century in France and in the middle of the century in England, what was it that led both countries



F. H. C.

Selby Abbey from South-east

to further tracery developments? Some new factor must have arisen. A new factor had arisen; it was stained glass. Accordingly, the fourth period of window development is the stained glass period: its special characteristic is that in its tracery the straight line is the predominant factor, *i.e.*, it is *rectilinear* tracery. In this period the stained-glass painter, with his humble mate the glazier, was the great man to whose behests even the master mason bent his design; in the end he dominated the latter completely.

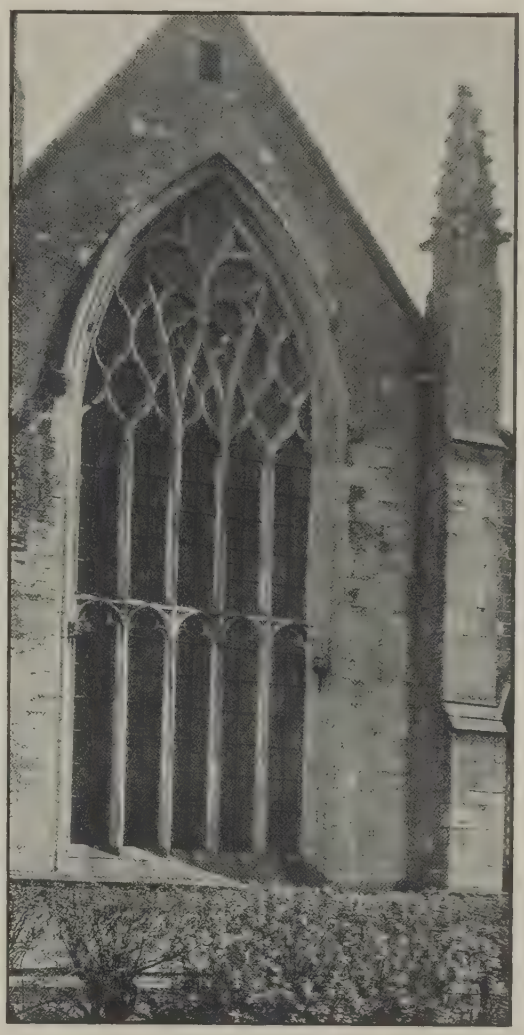


F. H. C. Nantwich, Cheshire

How stained glass came into such power can be more easily felt than explained. When the visitor stands before the ancient glass of Chartres or the modern windows of St. Philip's, Birmingham, either he is like the Queen of Sheba and there is no more spirit left in him, or he is not. In the former case the glass of Chartres, Bourges, Le Mans seems the highest achievement of human art; "a very apotheosis and rapture of colour, outrivalling the rainbow and vying with the flame." "Surely," says Hawthorne, "the skill of man has never accomplished nor his mind imagined any other beauty or glory to be compared with this." It emulates and rivals Nature. The flush of early dawn, the tempestuous splendours of a setting sun, have not more glory than the fires that glow and pale in ancient glass. "The light which falls merely on the outside of other pictures is in stained glass interfused throughout; it illuminates the design and invests it with a living radiance; and in requital the unfading colours transmute the common daylight into a miracle of richness and glory in its passage through the heavenly substance of blessed saint and angel; there is no such symbol of the glories of that world where celestial radiance shall be inherent in all persons and all things."

Moreover, it is a very present aid to devotion and other-worldliness. Till at

any rate the fifteenth century stained glass was very opaque; it was very thick, full of lumps and streaks and flaws, much weathered, glazed in very small pieces,[1] and therefore heavily leaded. Its very opacity was a merit. To us with our customary suits of solemn black and grey skies and drab lives it may perhaps seem a pity to exclude infrequent glimpse of blue sky and gay sunshine and billowy cloud-drift; but we do not go, at any rate we ought not to go, to church to look out for these things and think of the outer world, but of something else; a window so opaque that it excludes the outer world is the better, not the worse, for that.



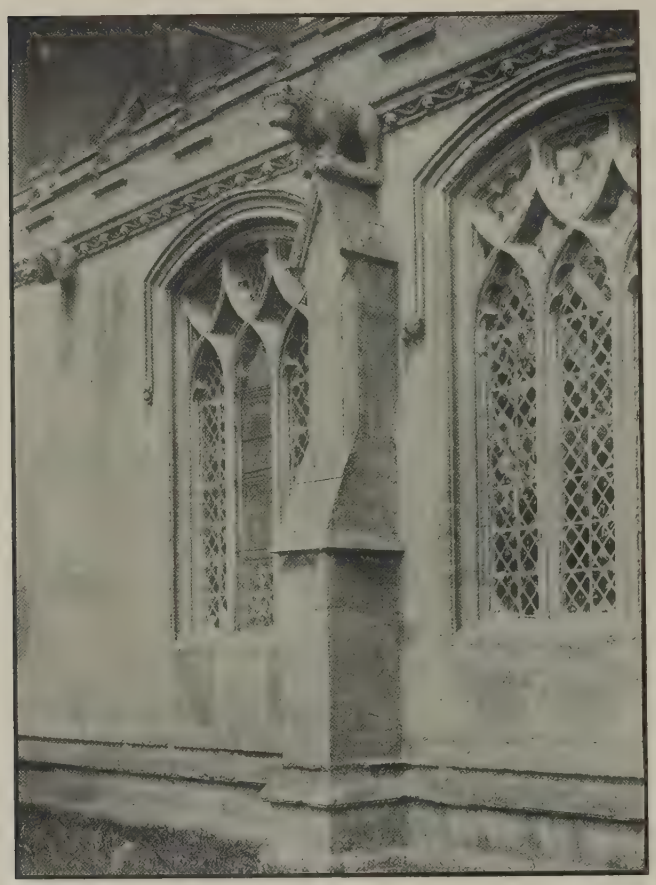
F. H. C. Patrington, Yorkshire

From the architectural point of view, too, opacity of glass is anything but a fault. To the builder the window is a continuation of the wall; and the more it simulates the solidity of masonry, the more fully window is brought into harmony with wall. Most of all was opacity valuable in later Gothic days, when the area of glass was so vast and the area of wall so greatly reduced. In a church so designed, the later "lantern church," a veritable glass house with stone piers employed as mullions between window and window, if transparent glass had been employed, the interior of the Greater churches, with the overwhelming vaults above, would have seemed as painfully unsubstantial as a conservatory; one could no more have said one's prayers in it than in the Crystal Palace.

But in trying to get at something of the hidden spirit of the old men we may easily lay too much stress on artistic and too much on constructional motive. The first motive, and the primary one, that brought the glories of Gothic architecture into existence, was neither art nor con-

[1] In some of the aisle windows of Chartres cathedral 120 pieces of stained glass to the square foot have been counted.—Clement Heaton.

struction, but religion. Churches were not built, glass was not painted, by lovers of art for art's sake. Churches and glass alike were commissioned and paid for by Christian people for Christian people. And what were Christian people like in mediæval days? Save here and there a clerk, practically the whole world was illiterate.[1] And the services of the Church were in a dead language. The whole Christian community needed instruction in the story of the Testaments, Old and New, the lives of the Saints and the Doctors of the Church, and the essentials of the theological scheme. And this monk and canon and priest set forth to do partly by wall paintings, partly by statued west front or reredos, but mainly through glass. The attitude of the Church towards glass was not that of an Academy of artists, but of a Society for the Promotion of Christian Knowledge. Windows were made primarily for edification, only secondarily for delight. "Picturae fenestrarum sunt quasi libri ecclesiarum." Range after range of windows was utilised, just as were the bosses of the vaults of Norwich cathedral and Worcester cloister, to give lessons in Scripture history. In the clerestory of Canterbury cathedral there are twelve windows, the glass of which is now destroyed, but which still existed, with the inscriptions, in 1703; two of them may be taken as examples. They were all arranged, as was the favourite mediæval fashion, in types and anti-types.



G. G. B. Over, Cambridgeshire

[1] There were, of course, exceptions; an English mediæval bishop was almost always a man of conspicuous business ability and a first-rate lawyer, who in general capacity could give points to our modern bishops.—A. H. T.

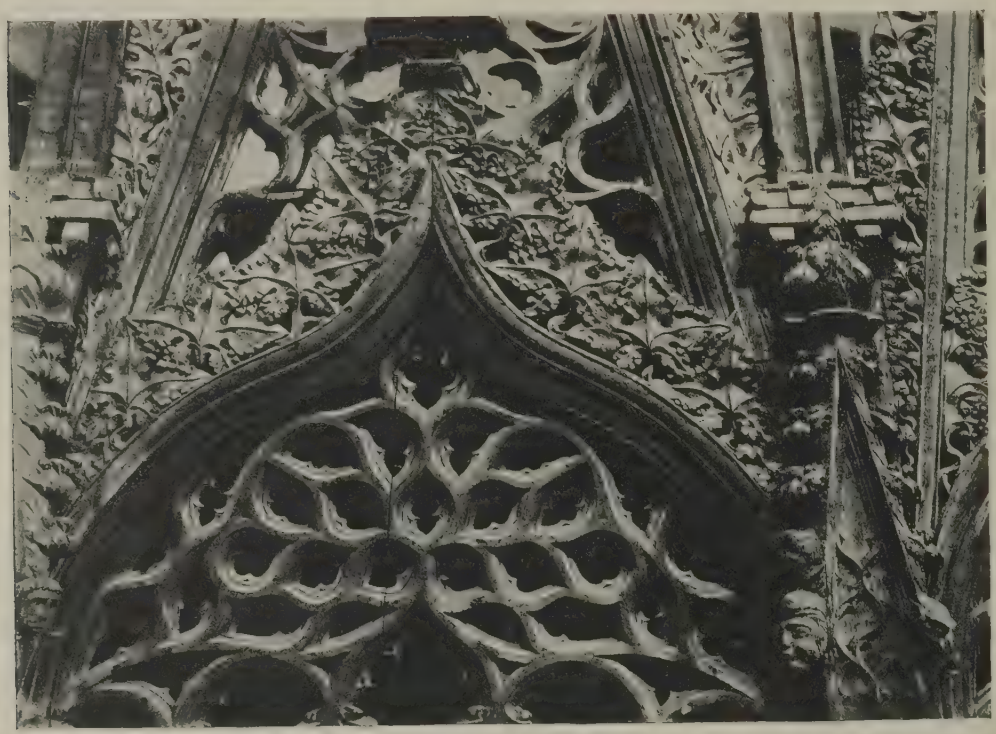
1. Fuga Domini in Egiptum. Fuga David et Doech,
"Hunc Saul infestat; Saul Herodis typus extat."
"Iste typus Christi; cujus fuga consonat isti."

2. Baptizatur Dominus. Noah in archa.
"Fluxu cuncta vago submergens prima vorago
Omnia purgavit; Baptisma significavit."

F. T. S. H. Bloxham, Oxon.

A frequent subject both for the carver of stone and the painter of glass, was the Doom or Last Judgment; such a window was designed expressly for edification, as saith the monk Theophilus. "But if the faithful soul looks on a picture of the Passion of Our Lord, he is pricked to the heart; if he sees what great torture the Saints have endured in their mortal bodies and what great rewards they have received in life eternal, he is admonished to lead a better life; if he beholds what great joy there is in heaven and what great torments in the flames of hell, he is taught to be of good cheer for the good things he has done, and is shaken with terror

when he considers the consequences of his sins." In the mediæval churches there were sermons in glass as well as in stone. The painted windows were valued more for their theological import than for their artistic interest. We moderns look at ancient glass with different eyes. It would have been a sad grief to a mediæval churchman to see the great south rose of Lincoln (673) or the east window of Beverley minster, built up of broken fragments of glass; but to one who loves colour, and to whom the colour matters more than the story, they are beautiful still,



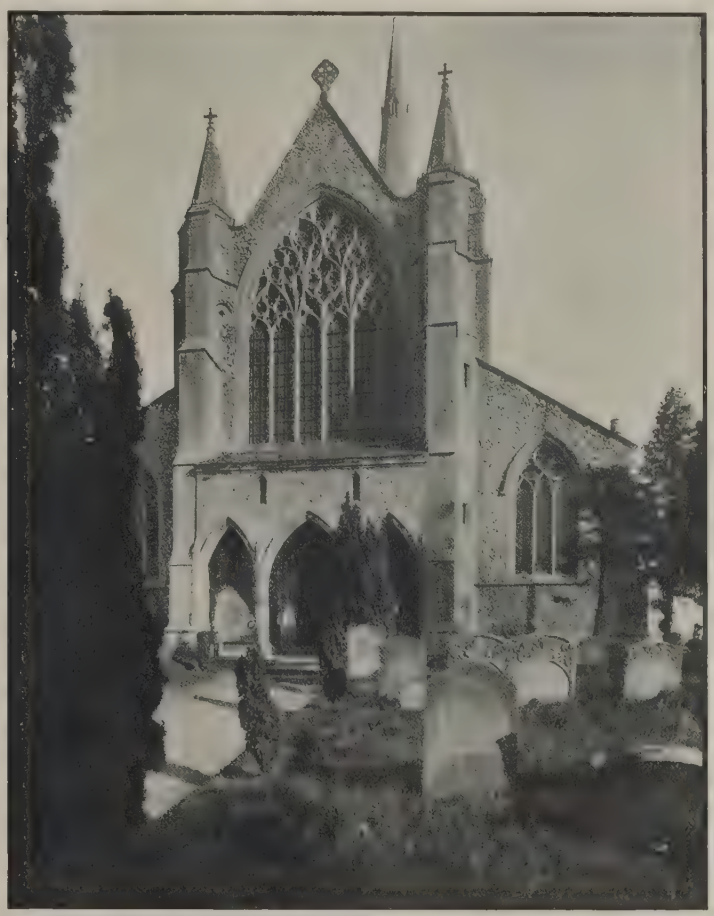
F. H. C. Lancaster Stalls

perhaps as beautiful as they ever were. And in the aisles and clerestory of York subject after subject is mixed up and misplaced; but what cares the colour-lover? A splash here of ruby, there of azure, there of gold, makes him perfectly happy. For a time, indeed, largely in the thirteenth and still more in the fourteenth century, the mediævalist produced one large set of windows free from the didactic purpose; pale green grisaille windows,[1] ornamented not with single figures or with groups of figures, but as a rule only with patterns, leaf-scrolls, and the like; and in this scroll-work, not in his inadequate figure-drawing, he was most at home and successful.

[1] Of these the "Five Sisters" of York are the finest specimen (176).

It was, however, not to grisaille, but to storied windows, picture windows, that the mediæval craftsman gave his heart.

But to convert traceried windows into galleries of Scripture history proved no easy task. Each window was in two divisions; in the bottom division were



C. F. N. Snettisham, Norfolk

the lower lights, in the upper the traceried openings. Each division presented special difficulties. The lower division was divided into distinct panels by mullions of stone. If the window was a small one, of two lights, such a subject as the Annunciation might be depicted, and the interposition of the mullion would not greatly matter. Similarly, if the window had three lights, it was adapted for a representation of the Crucifixion. But if it was a large window of several lights,

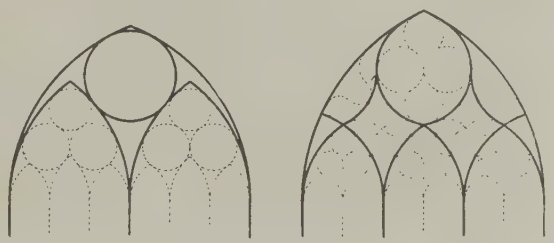
it was not easy to see how to treat it. Three methods were tried. One, the simplest and the best, was to insert a single figure of a saint in each light; this is the method adopted at Gloucester (652) and in the windows of All Souls', Oxford.[1] The second was to divide each light into two, three, or more panels one above another, and in each to picture a scene with several figures, *e.g.*, the east window of York minster and some in the York parish churches and those of Malvern; these tiny figures are, however, indistinct, confused, and unintelligible at a distance; there is little edification in such a window. The third method, and by far the worst, was to treat the whole row of lower lights as a single panel, and to paint a single picture across from jamb to jamb of the window, as if the mullions were not there; this is notably the method of late glass, such as the famous windows of Gouda.

W. M. Hawkhurst, Kent: East End

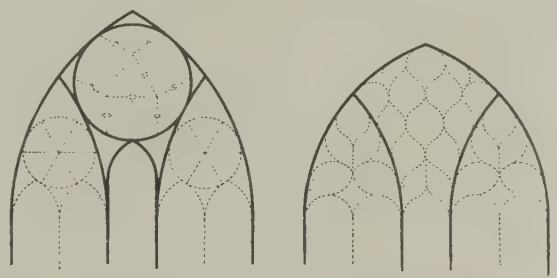
When it came to glazing the tracery lights, the problem was harder still. How by any possibility could they be turned into a repository of Christian portraits? As we have seen, it really could hardly be done with any success at all in a window head which was all circles and trefoils and quatrefoils and triangles, and but little better in tracery which in the main was a collection of "daggers" and "falchions." What was wanted in the tracery of the windows was precisely what was existent in the west front of Wells, the west wall of the nave of Beverley minster, and all round Ely Lady chapel; a row of niches for statuettes, or if need be, rows of niches superposed. Then, and then only, could that great man, the glass-painter, give lessons in Scripture history in the tracery as well as the lower lights of the windows. So came about the last and final transformation of window tracery in England—not in France, the French would have none of it—by which the tracery of the windows was parcelled out into rows of stone niches. Moreover, just as the niches of Wells west front are in horizontal rows, so it was to be with

[1] The attempt, however, to cram definite groups of figures, such as the Doctors of the Church or the Apostles, into a limited number of compartments sometimes led to unfortunate results. In the west window of York minster each of the main lights contains two figures, one above the other. The lower row consists of eight archbishops, alternately bearded and smooth-shaven. In the upper row are eight Apostles; but in order to get in the whole twelve minus Judas, three of the lights have extra figures squeezed in in the background, looking over the others' shoulders.—A. H. T.

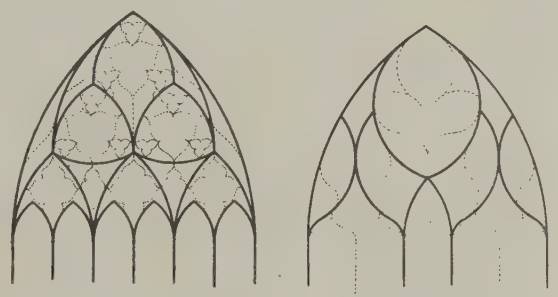
the niches of the windows. Turn to the window in Hull aisle (624), and imagine the scene if the glass-painter had filled the tracery lights with figures. How awkward the shapes of the apertures would be for him! how his figures would sprawl, some to the right, some to the left, others in every kind of distorted posture! How could he possibly treat decorously the tracery of either outer pair of lower lights? All this acrobatic indecorum was avoided if the tracery openings were converted into storied niches. And converted they were. How admirably adapted the new niche tracery was for the reception of figures may be seen by turning to the windows at Saltfleetby (662), Middleton (662), St. Decuman's (664), Lowestoft (2), Shrewsbury (659), Beverley (853), Sleaford (660), Gloucester (652), and Cartmel (876).



1, Raunds 2, Sleaford Transept



3, Fishtoft 4, Hull Aisle



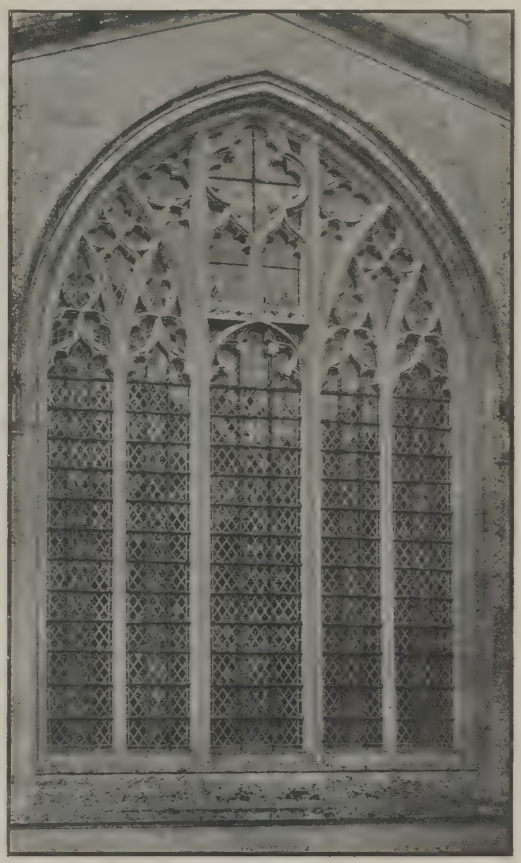
5, Hull Transept 6, Sleaford Aisle

All the lovely undulations of flowing tracery passed away to France, where they were welcomed and developed to yet further perfection. In England the glass-painter and the glazier won; the mason had to take his instructions from them. This great revolution was the work of the Gloucester builders. From 1330 to 1337 they were remodelling the south transept of the cathedral, and there they inserted the niched window, or, as some who do not appreciate it, term it, the "gridiron window," a window in which as far as possible curves are banned, and the tracery reduced to horizontal and vertical bars, producing rectilinear niches. By 1350 they had also finished the remodelling of the choir, and had inserted at its east end the present vast rectilinear window (652). Gloucester cathedral was at that time the greatest resort of pilgrims in England; with the offerings made by the pilgrims at the tomb of the murdered king, Edward II., the remodelling of the cathedral was effected, and these pilgrims took home the news of the great things that were done at Gloucester in window tracery and in glass. So revolutionary, however, was the

W. T. A.

Gloucester Choir

change in window design, that it required a whole generation at least for most people to get over the shock. The neighbouring choir of Tewkesbury was being remodelled at the same time as that of Gloucester, but the tracery is curvilinear (340). At Cheltenham also, nearer still, while some of the window tracery is rectilinear, other windows retain flowing curves. In East Anglia, in particular, which in those days was practically a separate island cut off from the mainland by river, swamp, and fen, the earlier graceful tracery was long reproduced, sometimes well into the fifteenth century. But in the end the new tracery, backed by glass-painter and glazier, prevailed everywhere, and reigned without a rival till Gothic art was no more.



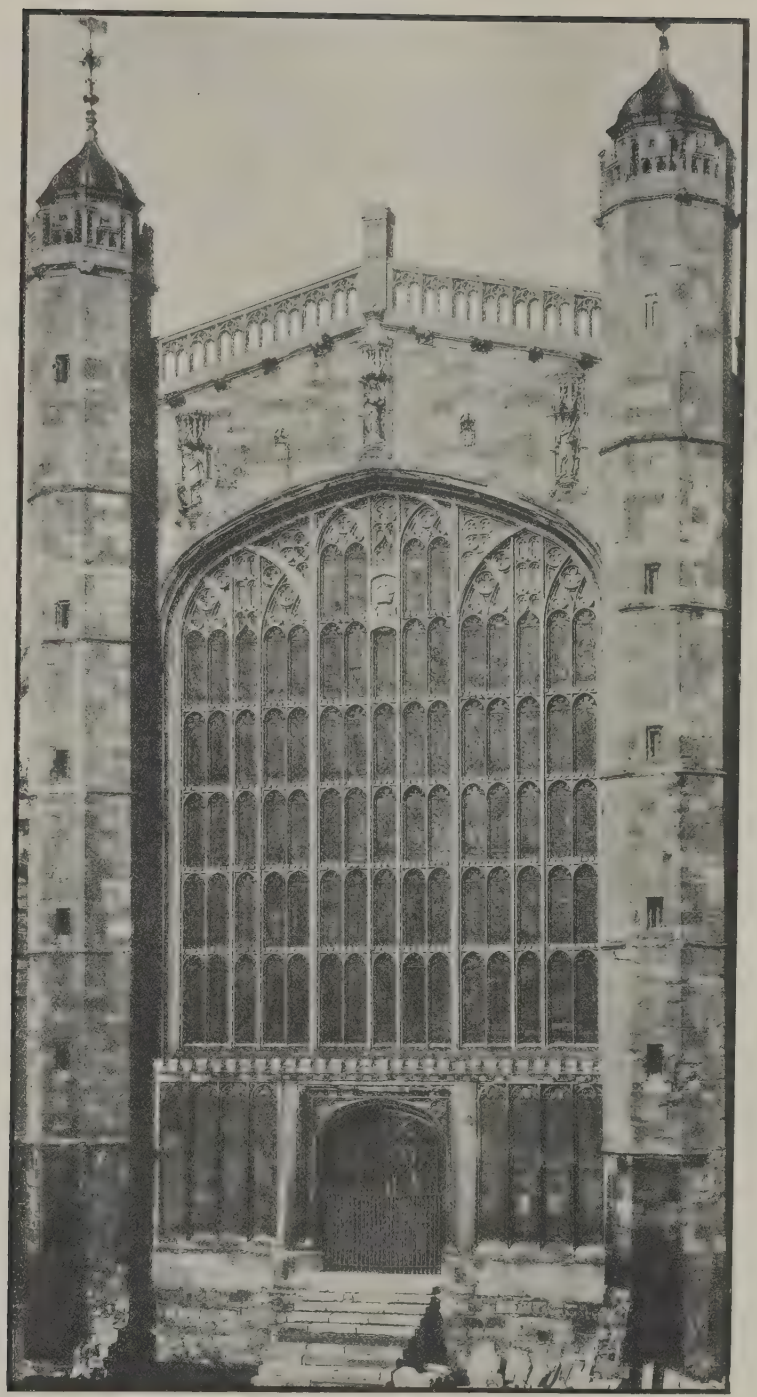
F. H. C. Edington, Wilts.: East Window

So far we have spoken of the new tracery as owing its origin to its value in the representation of saint and angel, prophet and martyr, and all the hierarchy of heaven. It had the further merit that it provided accommodation for a far larger number of these holy personages. For the windows now could be vastly increased in area. Formerly, the tracery, whether geometrical or flowing, was composed almost wholly, if not wholly, of curved bars; being curved, these bars were weak. But now the mullions were continued upward into the head of the window, often up to the window arch; such vertical bars were far stronger than the earlier bars with their geometrical or flowing curves. Advantage therefore was taken of this to increase greatly the dimensions of the window: it could be made, and often was made, as broad and lofty as nave or choir; *e.g.*, in the east ends of Gloucester and Beverley (776). But mullions rising up to the window arch, mullions perhaps 50 or 60 ft. high, themselves required to be stayed, lest they should bulge to right or left. Consequently horizontal bars, "*transoms*," were inserted across the lower lights as well as in the tracery; and the former, like the latter, were broken up into a series of manageable panels, once more to the entire satisfaction of the glass-painter. All this was accomplished to the full as early as 1350 in the great east window of Gloucester.

And if the new tracery was welcome to the glass-painter, what a relief it must have been to the draughtsman and to the mason! Set out on paper, if you can, the tracery of the Heckington window (642) or the Beverley reredos (629), and remember that full-sized working drawings have also to be set out on the ground; then set to work with axe and chisel to turn the paper curves into stone: what a relief it would be to have to draw and carry out the simple rectilinear tracery of Gloucester choir! Glass-painters, glaziers, draughtsmen, masons are all human: like the rest of us, they desire to get the maximum of result with the minimum of labour; laziness, quite as much as necessity, is the mother of invention. And what of those whose opinion also carried great weight, the convent, the chapter, the parish vestry, who paid for the work? They may well have been satisfied with the innovation; the new tracery was much less expensive to execute than had been its predecessors; they had all the more money to spend on glass, on translucent colour, and Scripture history.

F. H. C. Edington, Wilts.: Transept

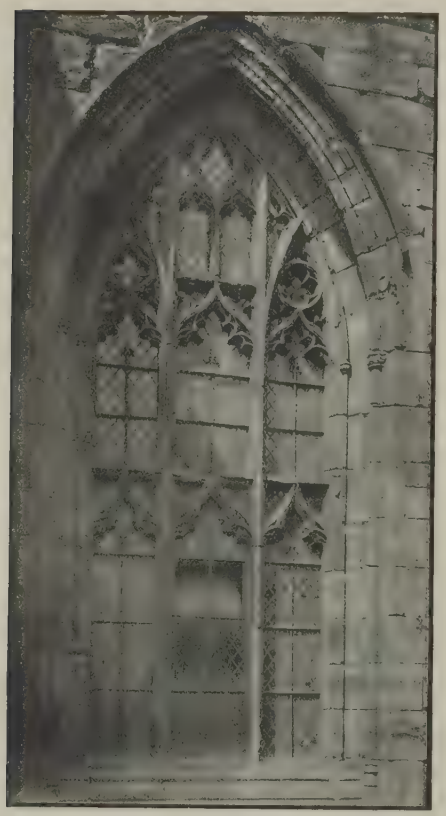
They may have had qualms about abandoning the cusped circles of Lincoln (587), the flowing curves of the tracery bars of York (639); but as to that too the glass-painter and glazier would have a word to say. When, and when only, does tracery get its full effect? Only when, as in Salisbury (97) or Norwich cloister (658), it is projected against a dark interior. In a church, tracery does not tell if it is seen from inside; you must stay outside to appreciate the windows; an unchristian thing to do. Moreover, you must look at the windows before they have been glazed; otherwise there will be no dark interior on which the tracery bars may project themselves. Somewhat unpractical it seems to design tracery which cannot be appreciated under normal conditions. As for stained glass, it spells ruin to window tracery. Go inside an interior like that of Strasburg nave, with fine tracery and old glass; you simply cannot keep your eyes on the tracery; it melts away in the irradiation of coloured light. Our English builders, at any



F. B.

St. George's, Windsor : West Front

rate at Gloucester, were practical men; they faced the problem boldly; put tracery into a subordinate place; designed it henceforth not for its own beauty, but as a frame for glass. The window indeed was reduced to a group of picture frames; and the glass-painter was as much the superior of the mason who made the tracery as the man who paints a picture is of the man who makes the frame. Nevertheless the mason could not and did not always efface himself; it must have been poor sport to design the great window at Gloucester: but it must have been pleasant enough to work out the tracery of the windows of Norwich cloister (658), Edington (654), and Nantwich (657).



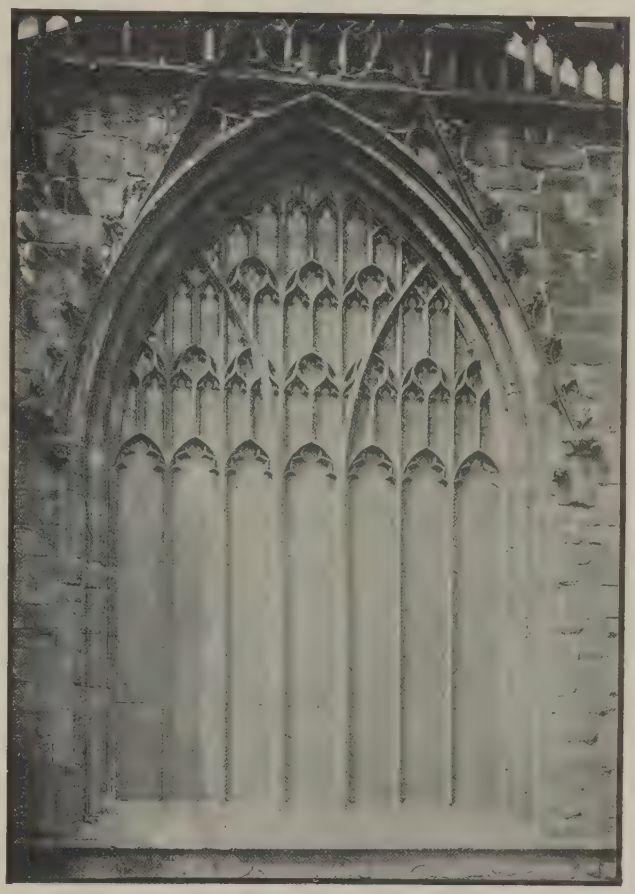
F. H. C. Nantwich, Cheshire: North Transept

It has been said above that the introduction of rectilinear tracery was a revolution. The term is not too strong. In everything else in Gothic art—the pier, the base, the capital, the vault, the tower, the spire, the roof—progress went broadening on from precedent to precedent: Gothic art in these and other matters was a process of slow, gradual development. The new tracery falsifies the maxim "*ex nihilo nihil fit*"; it is not a development from any thing precedent. It is easy enough, with other writers on Gothic architecture, to point out a gradual transition through windows into whose tracery a vertical bar crept here and there, *e.g.*, Norbury (626) and Welwick (664), to others in which curves are practically eliminated. But the Gloucester rectilinear tracery, which is much the earliest, is not transitional at all. Instead of the gridiron type being late, it is earliest of all; it appears at Gloucester in the south window of the south transept, and, without reserve, in the east window of the choir;[1] so it does in the west windows of the naves of Winchester cathedral and Holy Trinity, Hull, both of early date. It is an architectural Melchisedek.

[1] Rev. William Bazeley in the *Records of Gloucester Cathedral* for 1885-97, p. 10, on the evidence of numerous heraldic shields in the glass, comes to the conclusion that the glass was given by Thomas, Lord Bradeston, of Bradeston, near Berkeley, in memory of his comrade and friend, Sir Maurice Berkeley, son and heir of Thomas, Lord Berkeley, which Sir Maurice was slain at the siege of Calais, and in commemoration of the French campaign which ended in the glorious victory of Cressy in 1346; thus the date of the window would be 1347-50.

On the chief characteristics of rectilinear tracery a few observations may be made. One feature is the introduction of vertical bars into the tracery; when such a bar starts from the apex of an arch, as at Malvern (663), Framlingham (663), Middleton (662), St. Decuman's (664), it is termed a *supermullion.*

The cross bars are termed *transoms,* and occur both in the tracery, *e.g.*, Beverley (776), and in the lower lights, *e.g.*, Gloucester (652), Winchester (786), Northleach (660). *A priori* one would imagine that they would first appear in the tracery and gradually work their way down into the lower lights; this is not so however; the great window at Gloucester (*c.* 1350) is transomed from top to bottom just as much as is that of St. George's, Windsor (655), a hundred and fifty years later. The transom is often plain; but at times receives artistic treatment; commonly cinquefoliated arches are inserted below it; *e.g.*, Shrewsbury Abbey (659). At Saltfleetby All Saints (662) it is battlemented, and under each transom are three tiny ogee arches. At St. Decuman's also is an ogee treatment of the heads of the lower lights (664). In the great window, which at Beverley replaced the original grouped lancets, is a parapeted transom (776). The east window of St. Margaret, Lowestoft, has a curious set of graduated transoms both in the tracery and the lower lights (2).



F. H. C. Nantwich, Cheshire: East Window

The lower lights are usually pointed; sometimes they are segmental or even semicircular, *e.g.*, in Norwich cloister (658); sometimes, however, the ogee arch is retained, with charming effect; *e.g.*, at Malvern (663). In the later windows a bit of early geometrical design, the cusped circle, is not uncommon. Flowing tracery occasionally survives; *e.g.*, at Norwich (658) and Framlingham (663); it is quite common in windows of belfries and clerestories; it is often found in the side lights

of early rectilinear windows where the main design is thoroughly rectilinear; *e.g.*, in the west windows of Beverley St. Mary and the aisle windows of Terrington St. Clement, Norfolk. As the glass-painter's requirements became better known, curved bars were more and more avoided; but when arches did occur in the tracery, care was sometimes taken that mullions should not run through them; this is well seen in the windows of Norwich cloister (658); sometimes, however, this was disregarded, *e.g.*, at Malvern (663); in the best examples, however, the penetration

F. B.

Norwich Cathedral

is unobtrusive; *e.g.*, at Shrewsbury (659) and Beverley (776). "*Drop tracery*" is common, *e.g.*, St. Margaret, Lowestoft (2), Malvern (663), and Walpole St. Peter (661). More or less accidentally, the upper niches of large windows often arrange themselves in the form of a Latin cross; *e.g.*, in the west window of Shrewsbury abbey (659) and the east windows of Louth and Beverley minster. In the Oxford Colleges Gothic lingered long, and elaborate rectilinear tracery was produced at Jesus College (666) so late as *c.* 1571, and at Wadham early in the seventeenth century.

ANALYSIS OF WINDOWS WITH RECTILINEAR TRACERY

In the later Gothic the frame was so largely sacrificed to the glass that the window composition is usually of less interest; in smaller windows a few stock patterns were reproduced with much uniformity all over the kingdom; still there are interesting exceptions, especially in Somerset. The larger windows frequently present features of interest, especially those constructed when the traditions of early fourteenth-century design were still fresh; several charming specimens are described below, *e.g.*, at Nantwich, Norwich, and Edington.

Gloucester Cathedral: East Window (652).—The north transept was remodelled between 1330 and 1337, when the choir was taken in hand; the east window retains most of its original glass, the armorial bearings in which shew that it was made not later than 1350. Though this window, with the end window of the south transept, is the first large window to have the new tracery, it is remarkable that there is nothing whatever transitional about its design; early fourteenth-century feeling there is none. The tracery is purely rectilinear; curves are abolished to the very utmost; straight lines take their place; vertical mullions and horizontal transoms are the factors of the design; as far as may be, the window is mainly a collection of oblong panels, each enshrining its apostle, saint, or king. The upper panels are divided into five tiers, in the lower tiers there being fourteen in a row. It is the largest window in England, being 72 ft. high by 38 ft. broad. A similar great window, of "gridiron" type, was built in the west wall of Winchester cathedral late in the fourteenth century; others in Gloucester Lady chapel, 1457-98 (351).

F. B. Shrewsbury Abbey

Sherborne Abbey (770).—The remodelling of Sherborne was commenced after the fire of 1445, and closely followed Gloucester precedent; each window being divided by mullions and transoms into panels, and the panels continued in the choir over the front wall of the triforium chamber down to the arches of the ground story, precisely as in Gloucester choir (652). In the Sherborne choir the lights are arranged as 2, 2, 2; in the nave as 2, 1, 2.

St. George's, Windsor: West Window (655).—Even in the sixteenth century (the Windsor nave was vaulted *c.* 1528) the Gloucester precedent had lost nothing of its potency. The west window of St. George's, Windsor, is nothing but a collection of panels for figure subjects, with transom design simplified to suit the glazier. In the Gloucester east window there were tiers of fourteen panels; at Windsor there are fifteen.

Edington, Wilts.: East Window (653).—The windows of this church are of much interest,

as it was built by William Edington, who was Bishop of Winchester from 1346 to 1366, for a community of "Bonhommes"; its erection falls between the years 1352 and 1361. The transformation of the south transept and choir of Gloucester had been begun *c.* 1330, and was completed *c.* 1350; Edington church is therefore one of the first important churches to accept the architectural revolution effected at Gloucester. From Edington church the new style was introduced to Winchester first by William Edington, and then by his successor, William of Wykeham. As will be seen at once, the window of the east end of the chancel, which part of the church would be the first to be taken in hand, is full of pretty survivals

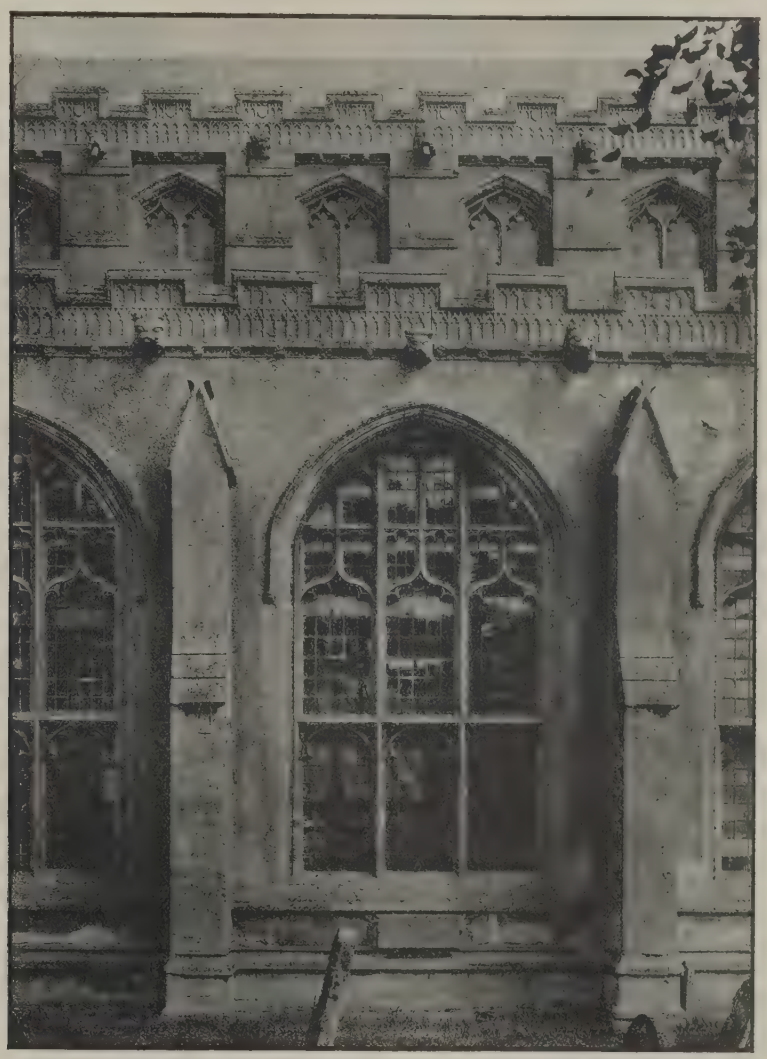
G. G. B. Sleaford, Lincolnshire

G. G. B. Northleach, Gloucester

of early fourteenth-century design; indeed, but for the presence of the supertransom and the carrying up of the central mullions to the window head, there is nothing of rectilinear character about it. It is a window of five lights, with the central compartment treated independently. Each outer compartment consists of a pointed and attached arch, in which is inscribed a pair of smaller pointed and attached arches; each of the latter is spanned below by an ogee false arch with five lobes; *i.e.*, cinquefoliated; on which are a pair of "falchions" supporting an inverted "dagger": there is a centrepiece of "daggers" and quatrefoils. In the central compartment the lower light is under a pointed arch with five lobes, the four main cusps of which are foliated; there is also double foliation. The apex of this arch is crossed

by a crested transom, and has a supermullion separating two ogee niches, which again carry a large quatrefoil with its main cusps foliated and with double foliation.

Edington Transept (654).—The transept would naturally be built later than the chancel,

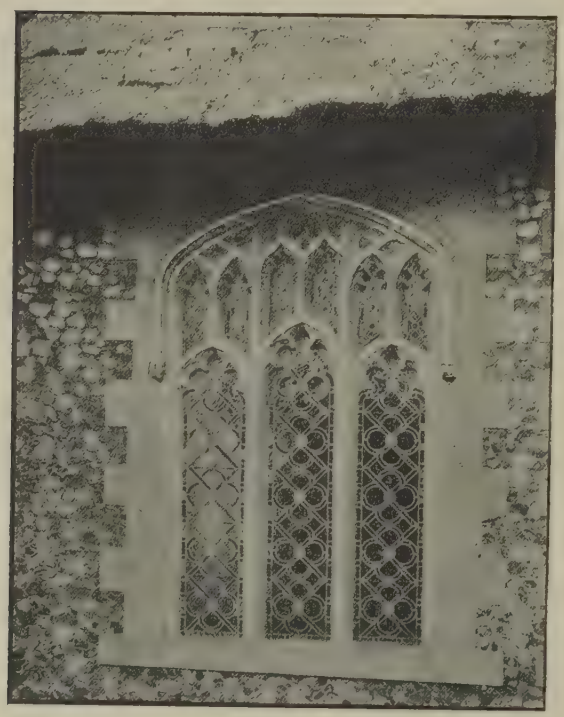


G. G. B. Walpole St. Peter, Norfolk

and the tracery of the window is proportionately more advanced in character. It is a window of three obtusely pointed lights with five lobes. Each of these lights is supermullioned, and the supermullions curve round a large quatrefoil ; a very unusual treatment. Each quatrefoil is again supermullioned, and between these two upper supermullions is a large quatrefoil.

York Minster: Retro-choir (787).—This work also is of early date; being begun in 1361, the year when Edington church was dedicated, and finished about 1370: being later in date than Edington, it accepts the Gloucester innovations more unreservedly. In the aisle window there are three lights, obtusely pointed and with only three lobes. These lights carry three arched niches, which are awkwardly cut in two by supermullions. Above the three arches are two straight-sided quatrefoils, which again support a single straight-sided sexfoil.

The clerestory window has five lights, arranged as 2, 1, 2. The two outer lights, which are pointed and attached, with five lobes, are inscribed in a pointed and attached arch, in



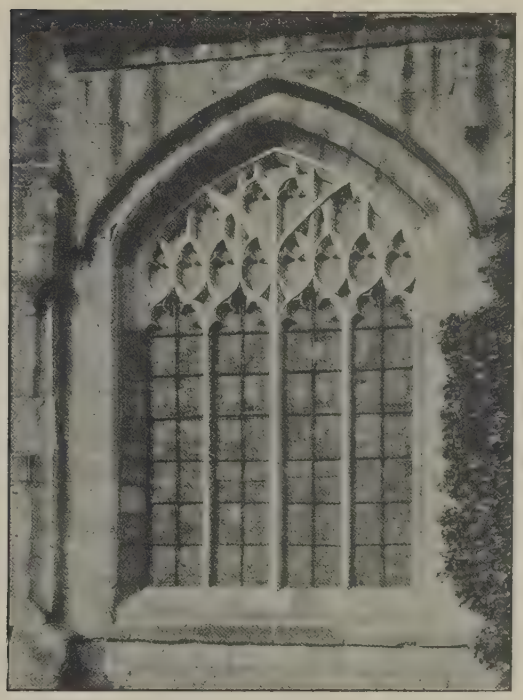
F. B. Middleton, Suffolk

F. B. Saltfleetby, Lincolnshire

the head of which are six niches supporting a "dagger." The tracery of the central compartment is divided up by two mullions and two transoms, and is filled up with a collection of niches and "falchions" with a quatrefoil at the top.

Nantwich, Cheshire: North Transept (656).—The windows of this stately cruciform church are of great beauty and interest. The greater part of the church was evidently built in the second quarter of the fourteenth century; to this period belongs the admirable work illustrated on pp. 644 and 855. But before it was completed, the Black Death of 1349 seems to have stopped the work. When it was resumed, the windows of the north transept and the east window of the chancel were inserted. These are of very interesting transitional character, blending quite delightfully the characteristics of flowing, geometrical, and rectilinear tracery.

The transept window is divided into three compartments by mullions rising to the window head ; the three compartments are divided by a molded transom into upper and lower lights. The three lower lights have ogee trifoliated heads with double foliation. Of the upper lights each outer one has a pointed and attached arch, which is spanned below by an ogee trifoliated false arch with double foliation ; the false arch supports a quatrefoiled circle. Thus the outer lights, top and bottom, contain only flowing and geometrical tracery ; there is no rectilinear work except for the transom. In the central compartment the ogee arch of the upper light supports a transom, and from the apex of the arch springs a supermullion separating a pair of ogee niches, which in turn support another smaller straight-sided niche ; the three



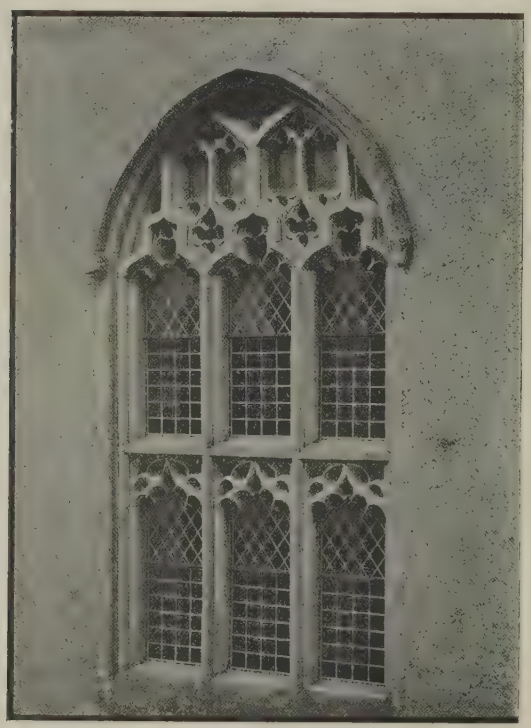
F. B. Malvern, Worcester

Framlingham, Suffolk

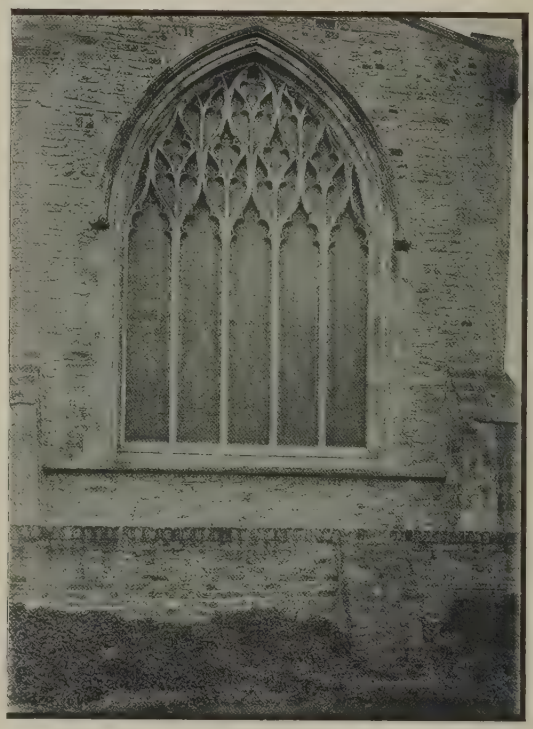
niches beneath the apex of the window all have ogee arches trifoliated and with double foliation. Thus the central compartment with its supermullions, transoms, and straight-sided niches, is of the new rectilinear character ; while the ogee arches and double foliation hark back to the second quarter of the fourteenth century.

Nantwich : East Window (657).—This is a window of seven lights, arranged as 3, 1, 3. Each outer group of three lights is inscribed in a pointed and attached arch. The seven lower lights are all pointed and detached, and have five lobes ; the six mullions between them are all carried up to the window head ; all the seven, moreover, have supermullions. Above the lower lights and between the mullions is built a row of seven pointed arches, the outer ones of which are truncated ; each pointed arch is divided by a supermullion into two ogee

niches carrying a vesica; unfortunately the great pointed arches cut right across this pretty row of arches; the head of each great pointed arch is occupied by a couple of straight-sided niches separated by a supermullion. Above the central light of the window is a single pointed arch; above this are three more, the outer ones truncated; above these are six graduated niches. In spite of the profuse employment of the ogee arch and vesica, this window is much more markedly rectilinear in character than that of the transept. Note, however, the employment of a straight-sided pediment, a form characteristic rather of the first years of the fourteenth century.



F. H. C. St. Decuman's, Somerset



F. H. C. Welwick, Yorkshire

Norwich Cloister (658).—These windows are early fifteenth-century work, but the one on the left, with its "falchions" and "daggers," is full of reminiscences of the design of the first half of the preceding century. The other window is far more formal; its main structure consists of three pointed arches intersecting and continued up to the window arch; the tracery is made up of supermullions and "daggers."

Shrewsbury Abbey: West Window (659).—This has seven lights; the central light is treated separately, and supports a Latin cross filled with supermullions and transoms. Three lights are left on either side of the central light; each triplet is included in a great attached pointed arch; the first and third lights also rise into attached pointed arches. An arcade of pretty niches is contrived above the upper transom. The window abounds in

reminiscences of early fourteenth-century design, and has points in common with the east window of Nantwich (657).

Beverley St. Mary: West Window (853).—This is a window of seven lights, and the difficulty of the odd number is ingeniously surmounted by allowing the two great attached and pointed arches to intersect; the minor pointed arch thus produced is repeated in the lights next the window jambs. The rest of the tracery is made up of supermullions and transoms. The intersection of the great arches is found also at Sleaford, Lincolnshire (660), and in other large windows. In Beverley minster, the carrying of a passage across the

G. W. S. Curry Rivel, Somerset

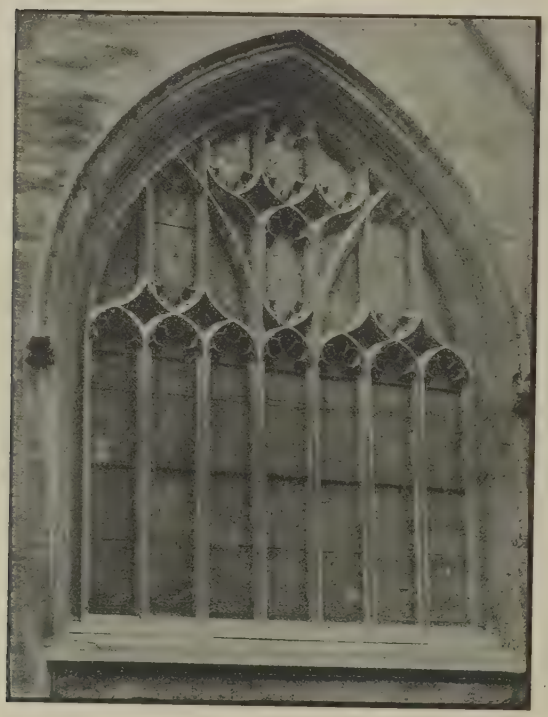
window by doubling the tracery is worth noting; it occurs in the north transept window at Durham, the east window at York, the south clerestory windows at Bridlington, and elsewhere. A bequest was made for the Beverley east window in 1416 (776).

Sleaford.—This window in principle is the same as that of Beverley minster, except that it has seven instead of nine lower lights. Both provide horizontal tiers of niches (660).

Northleach, Gloucester: South Aisle (660).—The four lights of this window are disposed in two massive pointed and attached arches. Below it is transomed; the transom is carried by four ogee arches, which have double foliation; between these and the transom are eight little quatrefoiled circles. The four upper lights are cinquefoliated. The tracery contains six straight-sided niches.

Walpole St. Peter, Norfolk (661).—The aisle window contains three ogee lights, which are cinquefoliated. Below is a battlemented transom supported by three cinquefoliated arches. Another battlemented transom cuts through the centre of the tracery. The ogee heads of the upper lights are supermullioned. Thus the surface of the window is divided up into six large and ten small niches, and is well adapted for figures in stained glass. The clerestory windows have two ogee arches supporting a centrepiece. Here there are no vertical lines in the tracery; lateness of date in such cases can only be inferred from the moldings.

Lowestoft St. Margaret: East Window (2).—In this quaint window the four mullions are carried right up to the window arch, and each light is designed independently of the rest with transoms on striding ogee arches, and in the window head with supermullions. It is an ingenious attempt to break away from the monotony of normal rectilinear design. It may be compared with the west window of Southwell minster, *c.* 1450.



F. B. Jesus College, Oxford

St. Decuman's, Somerset (664).—The heads of the six lights must have been a vexation of spirit to the glazier, but they were designed to contain the canopies of silvery glass beneath which the glass-painter set his figures.

Middleton, Suffolk (662).—A window of three lights, pointed and cinquefoliated, with drop tracery under a four-centred head and a stilted four-centred dripstone. The mullions are carried up to the window head, dividing the tracery into three panels. Each outer panel is set under an attached four-centred arch, which is divided by a supermullion into two pointed and cinquefoliated niches. The central panel is composed of two ogee cinquefoliated niches supporting a small quatrefoliated vesica. A great deal of thought and care has been spent on the design of this little window, as is generally the case with the late and excellent Gothic of East Anglia. In Suffolk, and still more in Norfolk, many village churches are thatched with the stout reeds of the Broads.

Malvern Aisle (663).—This is a window with drop tracery under a four-centred arch and dripstone. It has four ogee cinquefoliated lights, divided in two by two attached four-centred arches. Above the four lights is a row of eight trifoliated vesicas: above are four more straight-sided niches. Though designed for stained glass, it is not well adapted for the purpose, containing eight or ten small openings of awkward shape.

Saltfleetby All Saints, Lincolnshire (662).—A square-headed window, admirably adapted for figure subjects in stained glass, containing as it does six large and six small vertical niches separated by a pretty battlemented transom.

Framlingham, Suffolk (663).—A square-headed window of two lights which are obtusely pointed and cinquefoliated. From the apexes of the two lights supermullions rise to the top of the window, dividing the tracery into three panels. The central panel has a segmental arch, beneath which is a cruciform arrangement of four broad "daggers." This panel, being split in two, furnishes the design for the side panels. The treatment of the tracery of this window is original and rather pleasant; and, as is common in Norfolk and Suffolk, is reminiscent of early fourteenth-century design, beauty of tracery not being wholly sacrificed to the exigencies of stained glass.

Curry Rivel, Somerset (665).—A fine range of windows remains here; the design of the transoms is particularly pretty. It is not usual to find the same design in a big transept window and in those of the aisles. Windows of similar design occur in the refectory of Cleeve abbey, and at Langport and Selworthy, all in Somerset.—G. W. S.

Oxford: Chapel of Jesus College (666).—This window has seven lower lights, of which the central one is treated separately, and carries rectilinear niches grouped round two truncated intersecting ogee arches. The seven lower lights are pointed and cinquefoliated. Of the three lower lights on each side, two pairs are inscribed in two depressed intersecting ogee arches, the central light being employed twice. These two ogee arches are again circumscribed in an attached pointed arch; from their apexes spring supermullions enshrining a rectilinear niche with an uncusped "falchion" on either side: two more uncusped "falchions" appear in the centrepiece. The date of the window is 1636; one would hardly expect so much ingenuity and resource at so late a period.

C. F. N. Layer Marney Church, Essex

Bramber, Sussex (228).—In very many parish churches early traceried windows were taken out and replaced by larger windows of simpler design and better suited for stained glass; they are mostly of the last half of the sixteenth or of the seventeenth century, and are often styled "Jacobean." An early example is illustrated from Layer Marney church, Essex (667), where the arch, transom, and mullions survive, but cusps and tracery have disappeared.

The next step is seen in Elizabethan and Jacobean halls, such as Hardwick, Derbyshire, where the window is square-headed and retains only mullions and transoms.

In the oolite districts the above type is retained in use in large windows; but in small windows of cottages, farms, and manor houses, the transom is often discarded, only the stone mullion being left; *e.g.*, at *Ketton, Northants*, which bears the date 1629. This type of

window remained in use in the Cotswolds throughout the eighteenth century, and even now is not unknown (668).

Then in the charming sash-windows of Queen Anne and the Georges, stone mullion and transom are set closer together, and are converted into wood, often delicately molded and painted white, and set near the outer face of the wall, providing a comfortable window-seat.

Finally, the Early Victorian manner takes out both mullions and transoms, and inserts sheets of plate glass. Both the last stages may be seen at *Nun Monkton Hall*, Yorkshire.

F. B. Ketton, Northants: Cottage of 1629

CIRCULAR WINDOWS

Untraceried circles occur as small windows at all periods; *e.g.*, in the eastern gable of St. Cross, Winchester, the triforium of the nave of Waltham abbey, the triforium and clerestory of Southwell nave (743). They occur on a large scale in the gables of the French choir, Canterbury; when so large as this, the leading of the glass could only be kept from bulging in by stout iron uprights and saddle bars. A better method was to substitute spokes of stone, the spokes being designed as shafts with capitals and bases. Such wheel windows occur in the twelfth century at Barfreston (179) and Patrixbourne, Kent, and elsewhere; and early in the following century in the west front of Peterborough (670), in the transepts of Beverley (66), and in the south transept of York.[1] The next development was to fill in the circle with plate tracery, as in the Dean's Eye at Lincoln (672); this window is so much in advance of anything of the sort in England that the design may well have been borrowed from Laon cathedral, in which there are several large windows of similar character.

Next, bar tracery was employed, at first of geometrical character. By far the most important example remaining is the great circular window at the end of the south transept of Westminster; its original tracery was greatly mutilated, but the design was recovered from an encaustic tile in the pavement of the Chapter House, in which it is represented in facsimile. In this example the circular window

[1] In the east wall of Oxford cathedral is a modern wheel window by Sir Gilbert Scott (347).

is inscribed in a square. Then come windows with flowing tracery, such as that of St. Mary, Cheltenham; the design of this window looks complicated, but it is simply composed of a circular "eye" with eight lobes, from which radiate eight ogee arches, in each of which is inscribed a pair of pointed and cinque-foliated arches.[1] Largest of all, 40 ft. across, was the great east window of Old St. Paul's, as shewn in Hollar's print, 1255-83 (674); to these is to be added the "Bishop's Eye" at Lincoln, *c.* 1320 (673). Finally, a circular window with

F. B. Nun Monkton Hall, Yorkshire

rectilinear tracery occurs at St. Margaret's, Lynn, and another in the Bishop's palace at St. David's (676). The rose window received a much fuller development in France; we possess no important example in a western façade, except the ruined circular window of Byland abbey (671), Yorkshire.

TRIANGULAR WINDOWS

Curvilinear triangles were common enough as centrepieces in traceried windows, *e.g.*, in Hull transept (617), and occasionally they were used independently, *e.g.*, in

[1] Illustrated in Rickman's *Gothic Architecture*, 189.

W. H. M. Peterborough Cathedral : South Gable of Façade

the triforium of Westminster abbey, where the triangle contains sometimes one cusped circle, sometimes three (392). The former and earlier design was copied in the north transept of Hereford (677): the latter in the clerestory of Lichfield nave (677); both have geometrical tracery of early type. To the early years of the fourteenth century belongs a window with flowing tracery at Alberbury, Salop.[1]

F. B. Byland Abbey, Yorkshire

SOUND HOLES

In Somersetshire the belfry windows were sometimes filled with perforated stone tracery instead of louvre boards, *e.g.*, at Huish Episcopi[2] and North Petherton (908), to let out the sound of the bells.[3] In Norfolk and Suffolk similar perforated tracery occurs in many towers one story lower; these openings, which are usually square, are incorrectly called "sound holes," as they light the ringers' chamber, not the bell chamber. Good examples occur at Cromer and elsewhere. They abound in reminiscences of fourteenth-century design.

JESSE WINDOWS

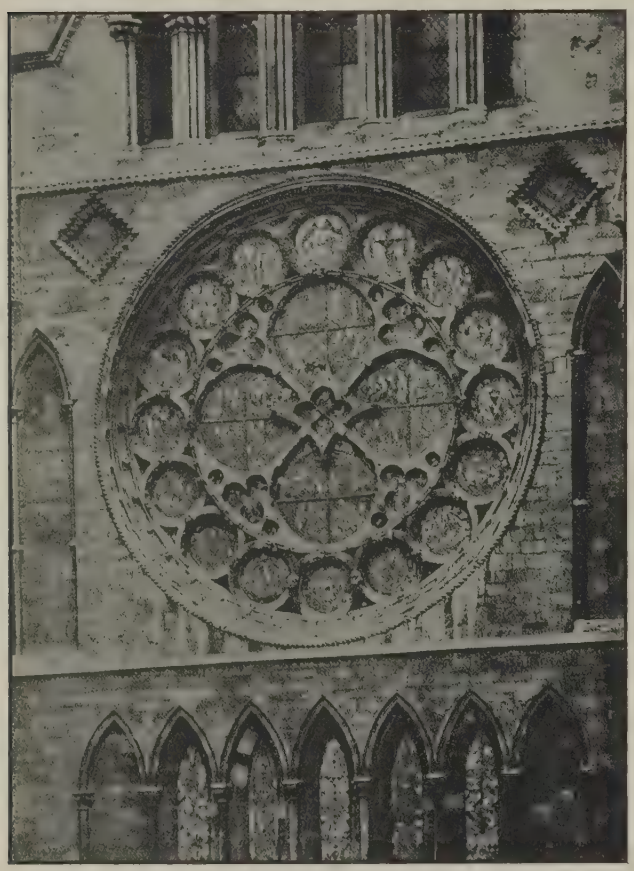
Jesse windows were not infrequent; though in all that have come down to us the figure sculpture has been greatly mutilated. They are of two sorts, those in which the pedigree is represented in stone or in stone and glass; and those in which it is represented in glass only. Of examples in stone the finest is that in Dorchester priory, Oxon. (680). These windows set forth the right theological import of the genealogy of Christ. Mr Westlake thus describes the famous Jesse window at Chartres. "On a couch at the bottom sleeps Jesse; from Jesse the tree springs upward; on its trunk sit kings in the central compartments holding in their hands its branches which shoot out laterally. Above these kings sits Our Lady; and above

[1] Illustrated in Rickman, 192.

[2] Illustrated in *Gothic Architecture in England*, 517.

[3] Perforated tracery occurs also in Gloucestershire belfries, *e.g.*, Wickwar.

her in the top compartment Our Lord; around Him are nimbed doves representing the gifts of the Holy Spirit spoken of in Isaiah, chap. xi.[1] In the side compartments, on the branches of the tree, stand the prophets, who may be called in a limited sense the spiritual ancestors of Our Lord, for by the inspiration of the Holy Spirit they foretold His coming." Among Jesse windows may be mentioned an early example, a good deal mutilated, in St. Denis Walmgate, York: another in the south aisle of the minster nave, and another in the south aisle of the choir. The east windows of Bristol cathedral and Selby abbey, the east window (fifteenth century) of the north aisle at Llanrhaiadr-yn-Cymmerch (Denbigh), a window (sixteenth century) in the south aisle of St. James's, Bury St. Edmunds, and another at Leverington, near Wisbech, are examples of fine windows of this type, all much restored, but with much good glass left. The east window of St. Mary, Shrewsbury, is known to be between 1332 and 1353. There is a large Jesse window at Ludlow, and a small circular one at Petsey House, Stoke-upon-Terne. The splendid sixteenth-century east window of St. George's, Hanover Square, London, came from a convent near Maestricht. The upper halves of the three-light windows in the north aisle at Lowick, Northants, contain a set of figures, twelve in all, from a fourteenth-century Jesse tree window. There appears to have been a Jesse tree reredos of wood in



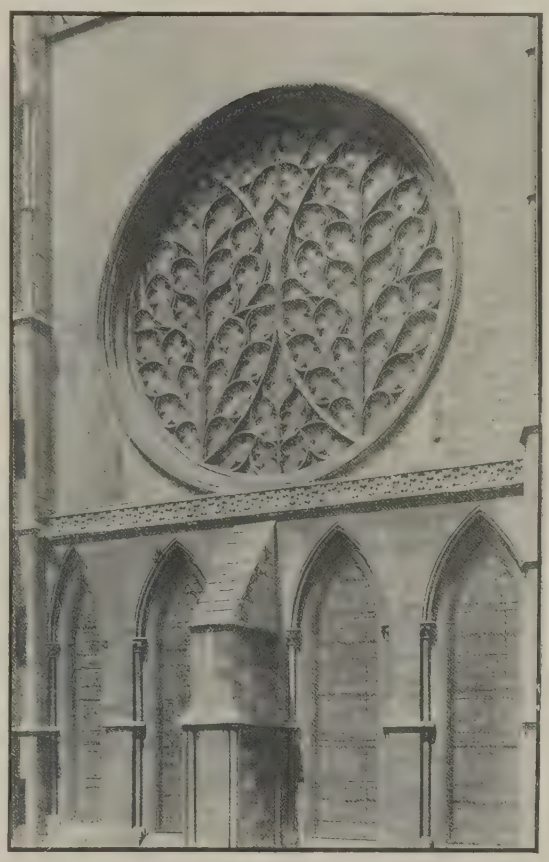
S. S. Lincoln Minster: North Transept

[1] "And there shall come forth a rod out of the stem of Jesse and a branch shall rise up out of his roots, and the Spirit of the Lord shall rest upon him, the spirit of wisdom and understanding, the spirit of counsel and of fortitude, the spirit of knowledge and of the fear of the Lord, and shall make him of quick understanding in the fear of the Lord." "In that day there shall be a root of Jesse, which shall stand for an ensign of the people." *Cf.* Acts xiii. 22.

Abergavenny priory—at any rate, a great recumbent wooden figure of Jesse is now placed on the sill of the east window of the south aisle. The same design appears in the stone reredos at Christchurch, Hants, fourteenth century (678), and in another in St. Cuthbert, Wells, 1470.

LOW SIDE WINDOWS

The term "low side window" has been firmly established by the controversy which has raged now more than sixty years; it may therefore be retained, but with three reservations, viz., that the windows are sometimes not low, but high up; that they occur in east and west walls as well as on the sides of the church; and that it has not been proved that in any case they were windows at all, while in very many cases it is quite certain they were not; as some still retain their original shutters,[1] others grooves for a wooden frame, others iron gratings, others bolt holes, others hooks for hinges.



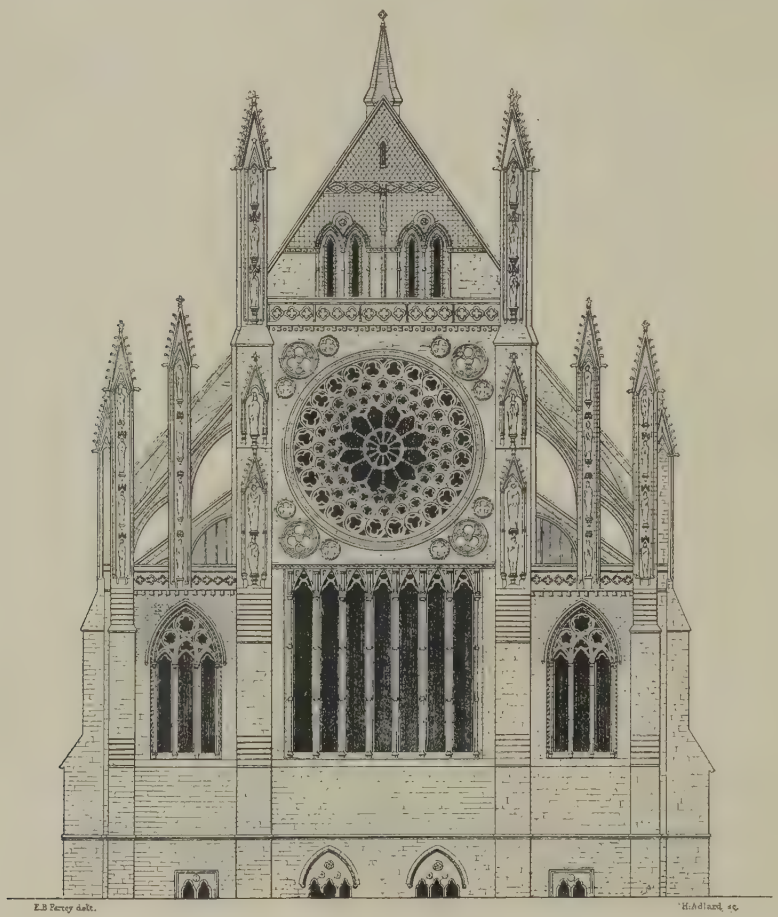
S. S. Lincoln Minster: South Transept

Two main classes may be distinguished. To the first class belong those openings which are at a different level from the rest of the windows. Of these some occur separately, *e.g.*, at Easby, Yorkshire (689); others are placed beneath another window, *e.g.*, Lillington, Warwick. To the second class belong windows of which the sill is lower than that of the rest of the windows. Sometimes the lower part of these windows is separated off by a transom, *e.g.*, at Eynsford, Kent (687), Liddington, Rutland (688), and Barningham, Suffolk (687), Olney, Bucks. (695),

[1] In eighteen cases out of thirty-six in Salop, it is clear that the opening had a shutter, and that the shutter opened inward, and was therefore intended to be opened and closed by some one inside the church, and not by some one in the graveyard. In most of the other openings the evidence is obliterated, so that we cannot say they had not shutters; only in three *high-set* openings can it be definitely said that there was no shutter; at Church Stretton the high opening was inserted above a low one to give light to the rood loft. "I am convinced that in many, if not in all the cases where the evidence is hidden or obliterated, there was originally a shutter."—(Mr Cranage in *Churches of Shropshire*, 1076.)

Walgrave (688), Northants;[1] sometimes it is not, *e.g.*, Hanslope (685) and Milton Keynes, Bucks.

Small separate windows of the first class are generally found to have been blocked; as also the portion below the transom of the second group of windows. If they had been glazed originally, it is improbable that they would have been



Old St. Paul's, London: Eastern Façade

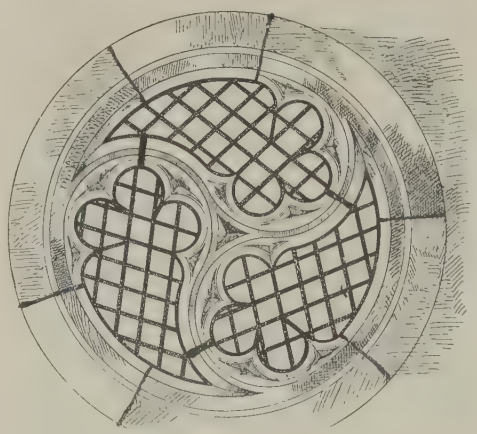
blocked; if they were shutter-and-grating openings, and the need for such passed away, they would be likely to be then blocked up. Great numbers of these blocked apertures have been reopened in recent years.

Very frequently the low side window is not of the same date as the other

[1] At Walgrave, the exterior of which is illustrated in Mr Markham's paper, p. 91, the mullions of the lower lights are rebated for shutters.

windows, *e.g.*, Hanslope; but there are many cases where they certainly were built simultaneously; *e.g.*, Olney, Eynsford, Milton Keynes, and Temple Balsall, where there is an exceptionally large example with three lights, all with transoms, illustrated on p. 601.

They occur in every period. To the Norman period examples at North Hinksey, Berks.; Barby and Wood Newton, Northants, and others are reputed to belong. The great majority, however, are of the thirteenth and following centuries; they are perhaps most common in the fourteenth century. In form they vary very greatly. Some are quite plain; *e.g.*, St. Michael's, St. Alban's (689), and Easby (689). Others are of great beauty, *e.g.*, the thirteenth-century examples at Chipping Warden, Northants, and Simonburn, Northumberland; and later examples at Olney and Walgrave. Again, some are quite diminutive; *e.g.*, at Grafton Underwood, Northants (681), the opening is but $2\frac{1}{4}$ in. wide. Others are of large size. Their position also varies. By far the greatest number occur on the south side of the chancel, between the priest's doorway and the nave, and very near the latter; as at Hanslope and Milton Keynes. But some occur in the north wall of the chancel, *e.g.*, Oxhill, Warwick (692); and a few even in its east wall, *e.g.*, St. Nicholas, Ringmoor, Devon, and there are numerous cases where they are to be seen in both its north and south walls. They occur also in the walls of chantry chapels, and in the north and south walls of the nave and its aisles; and a few examples are to be found in the west wall of the nave, *e.g.*, Dartford, Kent; Ludham, Norfolk; St. Mary's, Guildford; and Stanford-le-Hope, Essex. At Grafton Underwood, Northants; Kinnersley, Herefordshire; and Limpsfield, Surrey, they are near the east end of the south wall of the chancel, in a line with the altar (679). By far the greatest number are low down in the wall; that at Limpsfield is exceptionally near the ground; as are those at Redmarshall and Hart, Durham. On the other hand, a certain number are so high up, that if they were to be used from outside, a ladder would have to be set up; examples occur at Grafton Underwood, Northants; Ingham, Norfolk; Lowestoft, Suffolk; Addlethorpe, Lincolnshire. That in the chapel of Winchester College is about 10 ft. from the ground, both externally and internally. There are two in Prior Crauden's chapel at Ely,[1] which is built over an undercroft;



R. B. Carlisle Cathedral

[1] One is seen on the left of the central buttress.

the sills of the openings are 2 ft. 6 in. above the pavement of the chapel, and 10 or 12 ft. from the ground outside (686); similarly situated is the low side window in Leeds Castle, Kent. A few examples have a stone seat, more or less elaborate, constructed in the internal recess of the window; *e.g.*, Allington, Wilts.; Morpeth, Northumberland; Elsfield, Oxon.; Melton Constable and Sheringham, Norfolk; Warlingham, Surrey; a few have also a stone desk or shelf for a book, *e.g.*, Doddington, Kent; Wigginton, Oxon. (682); Melton Constable and Elsfield; that at Church Preen, Salop, has two seats; it is just east of the screen which, half way down the nave, divided the monks' chapel from the parochial part of the church.

G. F. St. David's: the Palace

A large proportion of our churches have or had low side windows. In Sussex, Mr P. M. Johnston found that out of 315 churches about one-half can be proved to have had low side windows; and that in the 145 ancient churches of Surrey the proportion was about the same. The Rev. J. F. Hodgson found 25 or 01 these windows in 47 ancient churches in Durham. In Warwickshire, Mr F. T. S. Houghton found that in 143 churches having ancient chancels, 76 have or had them. In Northamptonshire, Mr C. A. Markham found 148 low side windows. On the other hand, the Rev. J. C. Cox records only 9 examples in 130 Derbyshire churches. In Shropshire, Mr Cranage gives a list of about 130 mediæval chancels, and of 36 low side windows, of which 30 are placed in a chancel. In Worcestershire there are about 130 churches with mediæval chancels; of these only 9 have low side windows.[1] In different districts, therefore, the use varied greatly. Taking the whole country over, however, the number must be very large.

Low side windows being so numerous, it is all the more astonishing that no mention of them is ever made in any of the mediæval service books; nor again is anything known of any injunction or injunctions ordering them to be blocked in parish churches. They have offered, therefore, a fruitful ground for conjecture, and this has been taken advantage of to the fullest extent.

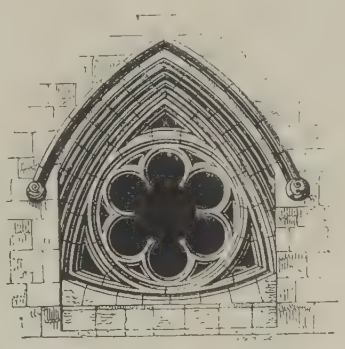
I. One of the earliest explanations offered was that they were *Lychnoscopes*; *i.e.*,

[1] The statistics as to Warwickshire and Worcestershire are communicated by Mr F. T. S. Houghton; those of Shropshire are from Mr Cranage's *Churches of Shropshire*, p. 1075.

apertures through which people outside could see if the Paschal candle was burning at Easter: it being the custom to keep lights burning before the Easter sepulchre from Good Friday to the dawn of Easter Sunday. The objection is that the Easter sepulchre could seldom be seen from the usual position of a low side window; moreover, plenty of parish accounts shew that men were paid to stay *inside* the church and watch the Easter sepulchre, and that lights other than the Paschal candle were employed for it.[1]

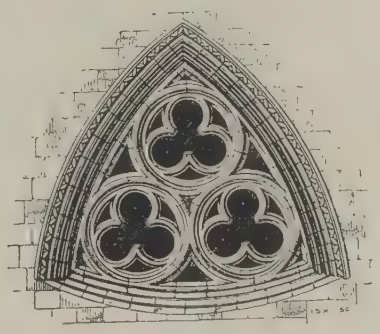
II. They have been supposed to be *Hagioscopes*, intended to give a person outside a view of the Elevation of the Host. But this could not be seen through a low side window in its normal position.

III. They have been held to be intended to give a view of the Rood or Crucifix on the screen to a person outside the church. But they would only give the merest glimpse, and that of the back of the Rood. If such had been their purpose, they would have been so placed as to give a view of the front of the Rood. Moreover, there are many low side windows from which not a glimpse of the Rood could be obtained.



Hereford

IV. Others, pointing to the occasional presence of a seat and book rest, infer that the opening was intended to give better light to the priest seated there and reading his office. But low side windows are not confined to the chancel; are we to infer that the priest went to each aperture to read his breviary? Moreover, they were undoubtedly in most cases not glazed at all, but shuttered. Nor would a priest be likely to prefer a cold stone seat in a window recess to his comfortable wooden stall hard by.



E. S. Lichfield

V. A Danish archæologist enriches the discussion by the suggestion that "the openings have been used as look-out holes to observe what was taking place outside the church, *e.g.*, the approach of a funeral, for which purpose the usual windows are

[1] The directions for the use of candles endowed by the founder of the college at Sibthorpe, Notts. (dated 4th February 1342-43), require two candles to burn every year in the chancel by the sepulchre of the Lord from the ninth hour of Good Friday (*i.e.*, 3 P.M.) till after the end of the service of the Resurrection on Easter day—by which I think the dramatic service at the sepulchre between matins and lauds, for which directions are found here and there, is meant. The Paschal candle had nothing to do with the Easter sepulchre. It was lighted with the hallowed fire, which at Salisbury was blessed after nones between two of the columns on the south side of the nave near the font. It was set up on the north side of the chancel, and remained there during Eastertide.—A. H. T.

set far too high. One must not, however, entirely reject the idea that these openings may have served as holes for archers."

VI. Alms are thought to have been distributed through them to beggars outside the church. But there is no record of any such practice, and the gratings would have been in the way.

VII. Mr Paley held that they were intended for recluses to put their hands through the aperture from their little shed attached to the church wall and make the due oblations at the Eucharist. Permanent gratings, however, would make that

H. E. M. Christchurch : Reredos

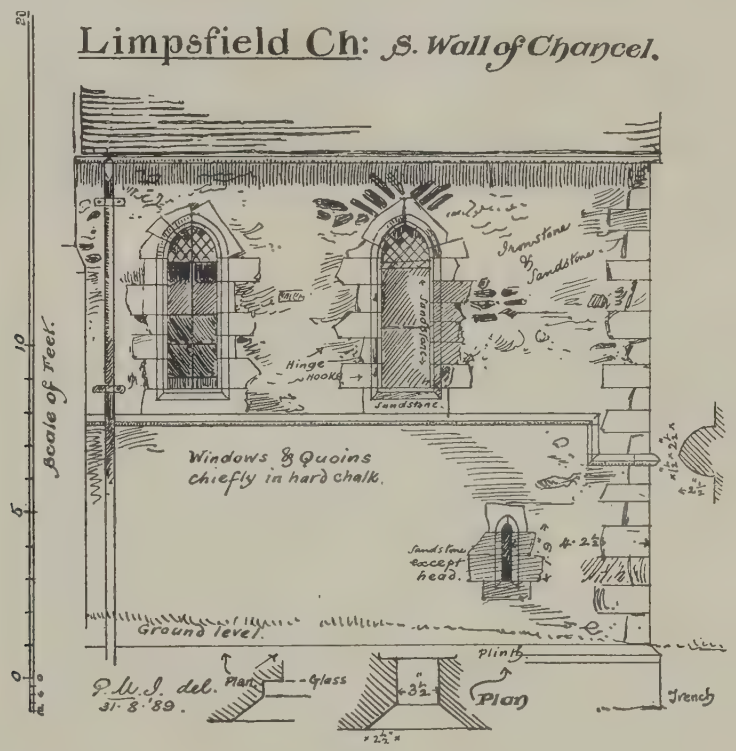
impossible. Moreover if we are to postulate one anchorite for each low side window, there must have been a vast multitude of them.

VIII. Or they may have been for acolytes to pass the thurible through in order to have the charcoal blown to a red heat in the open air before the incense was put on, thereby avoiding the unpleasant fumes when the charcoal was first lighted. But the through draught would bring the fumes back into the church ; moreover, a thurible could not be passed through a grating.

IX. It has also been urged that as most windows were filled with stained glass and were not made to open, these openings were devised to ventilate the church ; being grated and shuttered, they could be left open as long as desirable. But why

openings so small, and why in such a vast majority of cases at the west end of the south wall of the chancel?

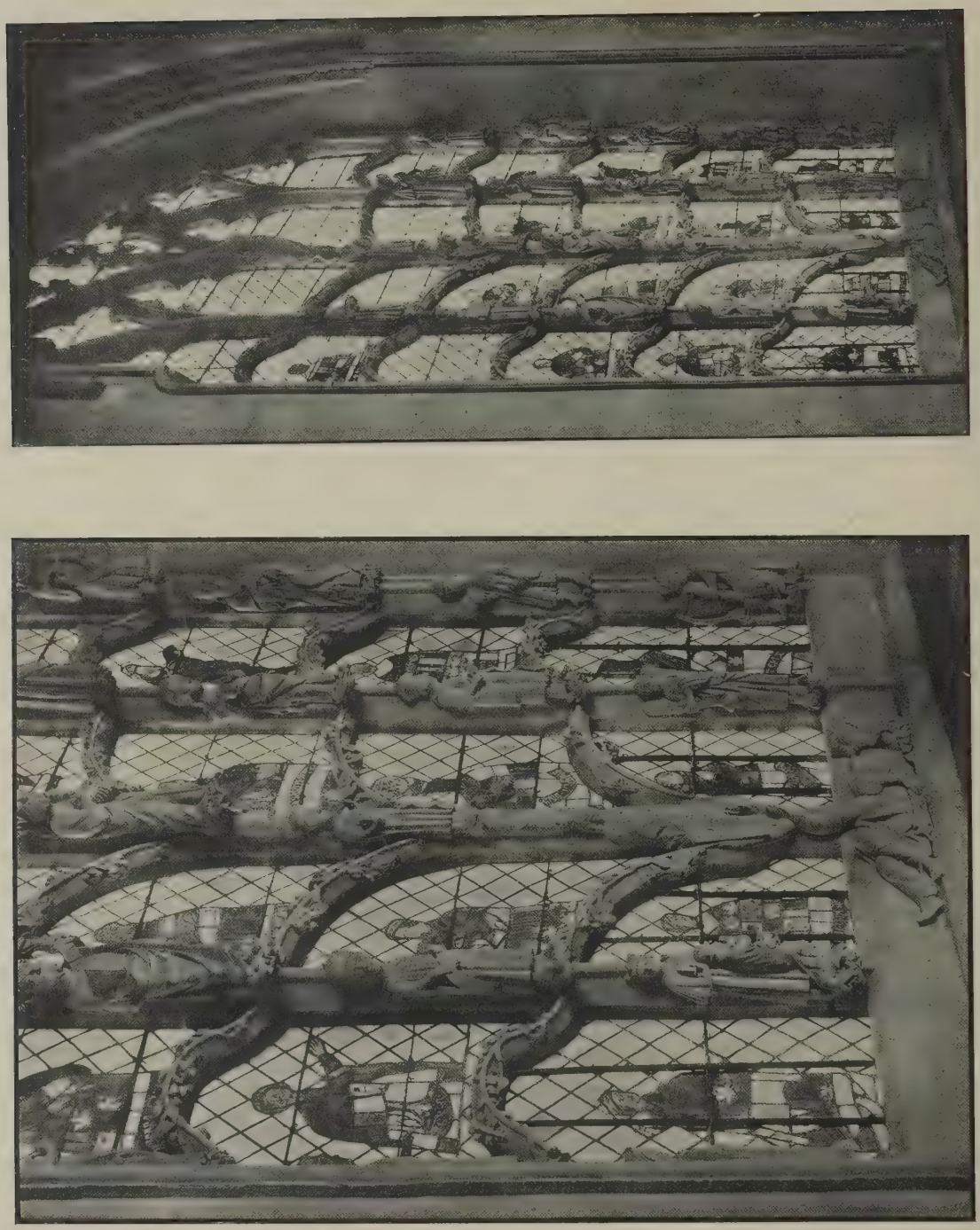
X. Then comes the symbolist with his *Vulne* theory that the low side window was symbolical of the wound of Christ crucified.[1] To the objection that the opening ought to be in the nave, not in the chancel, he replies that the twelfth and thirteenth century chancels were often as long as the nave, which is untrue. To the objection that low side windows occur on both sides of the chancel, he replies that it is



uncertain on which side of the body was Christ's wound; and so the builder, to make sure, inserted a low side window on either side of the chancel. But what about those openings which are in chantry chapels, or at the west end of the nave or its aisles? How can they be symbolical of Christ's wound? And what does the shutter symbolise? And what the grating?

XI. Frequently they are styled *Lepers' windows*; the idea being that when Mass was being said, the lepers would come into the churchyard, and, the shutter

[1] Such words as "lychnoscope," "vulne," etc., are the vain inventions of the age which prattled about "Early English," "Decorated," and "Perpendicular."—A. H. T.



Dorchester, Oxon.: Jesse Window

F. H. C.

being opened, could hear something of the Mass, and have the Holy Eucharist passed to them through the open window. This, however, could not be done where there was a grating. And where the opening was some 10 ft. from the ground, and when the wall was some 5 ft. thick, neither the priest could administer nor the leper receive the Sacrament. Moreover, why in some churches should there be two or even three windows for lepers?

In addition, there were strict injunctions against lepers entering a churchyard; they were segregated in lazar houses, to which were attached chapels, and there they would receive Holy Communion. At Burton Lazars near Melton Mowbray, where there was a very important leper hospital with its own chapel, there are two low side windows in the chancel of the parochial chapel; these, therefore, can have had nothing to do with lepers, nor indeed would any mediæval community have suffered lepers to have come anywhere near a church not specially provided for them.[1]

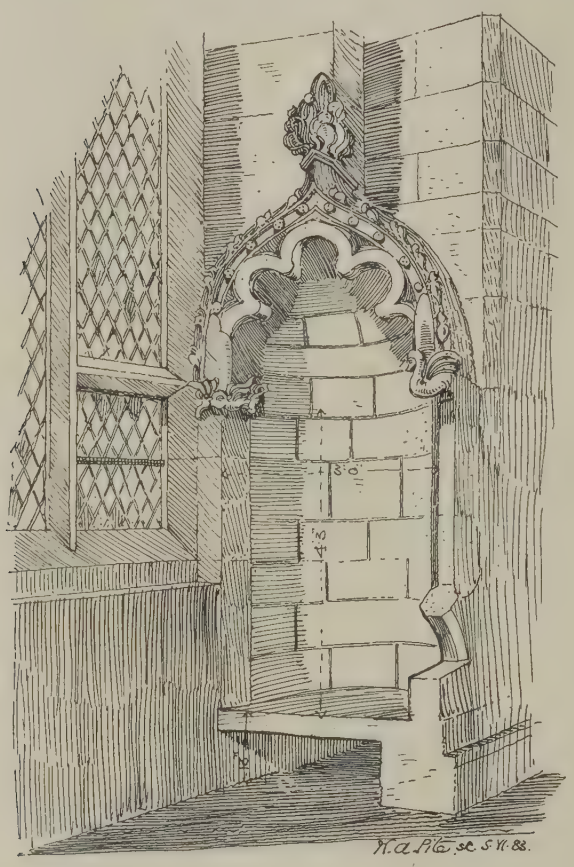
Sherburn hospital, Durham, was founded by Bishop Pudsey in 1181, and dedicated to Our Saviour, the Blessed Virgin Mary, Lazarus and his sisters, and was to accommodate sixty-five lepers, male and female. Two chapels are mentioned in the foundation charter as attached to this lazar house; the hospital chapel and St. Nicholas' chapel within the house of the infirm. The establishment was to include three priests; two to celebrate at the altar of St. Mary Magdalene, and one at the altar of St. Nicholas, and "this shall be the Mass for the leprous sisters within whose house, on the south side, the said chapel is situated." A hundred and twenty years later Bishop Kellaw added a fourth priest to celebrate "in the new chapel which he has constructed in honour of the Blessed Virgin on the north side of the greater chapel."[2] So that in this lazar house there were three chapels, and not much need for a leper to make his confession, or hear his Mass, or make his communion through the smallest and narrowest window of the parish church, while he himself knelt on the wet grass of the churchyard.

XII. Another theory was set forth in 1900 with great ability and learning by the Rev. J. F. Hodgson. He points to the fact that lights were placed in

[1] Communicated by Mr A. Hamilton Thompson.

[2] From a communication by Rev. T. Romans.

church round a bier before a funeral, and again on each obit day round a tomb; that in certain graveyards in France pillars are erected with a stone lantern at the top containing a light; that on the walls of some Austrian churches also there are stone brackets for lights. All these lights he holds were intended to scare away evil spirits. Therefore our low side windows may have been intended to receive a light to scare away evil spirits from the churchyard.[1] But he does not prove conclusively that the purpose of such lights was to scare away evil spirits: it is more likely that, like lights before the Rood, before the suspended Pyx, and before statues and paintings of saints on the church walls and piers, they were intended simply to do honour to the faithful departed. Thus Peter, Abbot of Cluny from 1122 to 1156, in describing a *fanal* or *lanterne des morts* at Charlieu, says that "in the middle of the cemetery is a stone structure with room at the top for a lamp, which is kept burning all night as a mark of respect to the dead" (*ob reverentiam ibi quiescentium*).[2] But whatever the purpose of the light, it would be a mistake to place it in the recess of a low side window, where the draught would blow it out.



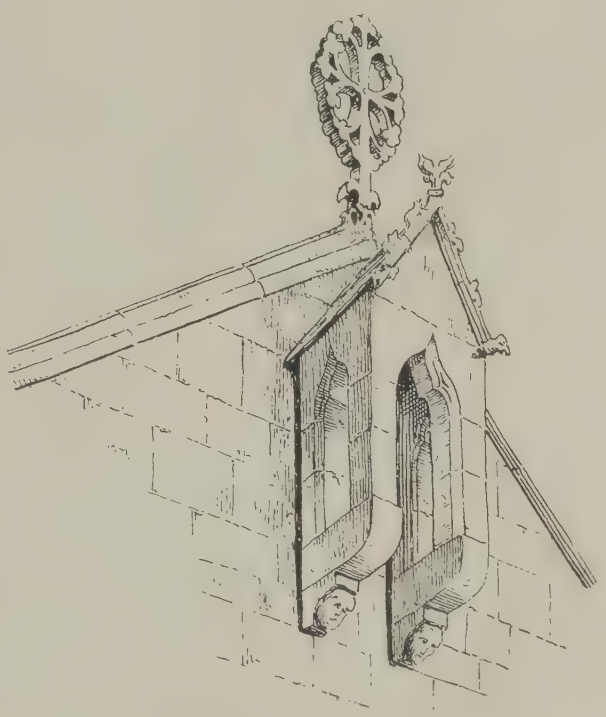
Wigginton, Oxon.

XIII. The theory that they were *Confessional* windows is supported by the fact that in a very few instances there are seats and book rests. But in some cases the openings are so low down that priest inside and penitent outside would have to lie down. In others they are so high up, that both would have to

[1] He states that in some cases he has noticed traces of pulleys in the head of a low side window, as though a hanging lamp could be lowered for trimming and then hoisted up again; the trimming could be done from outside through the opened shutter-hole, while the glass in the upper portion of a transomed low side window would shield the hanging lamp from the draught. But why should the sacristan wish to trim the lamp from the outside of the church, when it would be much less trouble to do it inside? And how could he trim it from outside when there was a grating? In windows of the shape of those at Tatsfield, Surrey, and Dersingham, Norfolk, it would be distinctly difficult to trim a lamp from outside (691).

[2] Enlart's *Architecture religieuse*, 795.

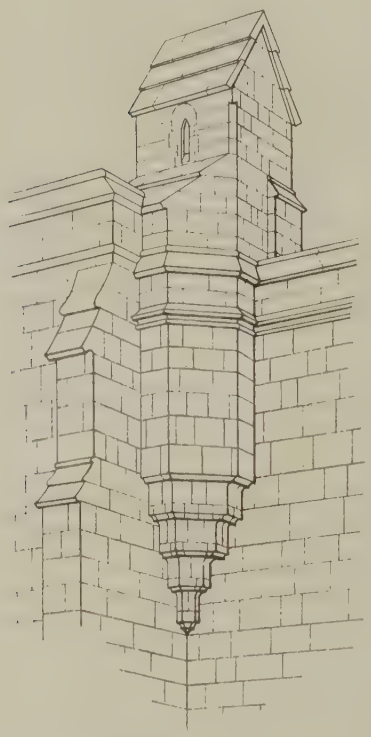
climb ladders. At Leeds Castle, Kent, the opening in the private chapel is above the moat. Had the penitent to swim the moat? Besides, why should there be two or even three confessional windows in one church? And who heard the confessions? Not the parish priest; it is known from the evidence of illuminations and otherwise that he sat for the purpose in the open church on a chair placed in front of the chancel screen. Why should he move to a hole in the wall, which would give him toothache or a stiff neck? And who were the penitents? Not the parishioners; for from time immemorial they were accustomed to make their confession in open church and certainly would not care to kneel outside in the churchyard at a hole in the wall. It is urged that the Friars Minor obtained permission in 1287 from the Archbishop of Canterbury to hear confessions and give absolution without the assent of the parish priest. But a considerable number of low side windows were constructed before that date. It is urged also that Richard Bedyll, Clerk of the Council to Henry VIII., writing to Thomas Cromwell, then engaged in a visitation of the monastery of Sion, says, "We have sequestered Whitford and Litell from hearing of the ladys confessions; and we think that the place where these friars have been wont to hear *outward confessions* of all comers at certain times of the year, be walled up for ever, for that the hearing of outward confessions hath been the cause of much evil and of much treason which hath been sown abroad in this matter of the King's title, and also in the King's Grace's matter of his succession and marriage."[1] From this it has been argued that low side windows in general, including those in parish churches, were ordered to be blocked up at this time. But the order says nothing about parish churches, nor about the Greater churches in general, but only about one of them, and in that case the prohibition is not based on



E. S. Welbourne, Lincolnshire

[1] The quotation in full has been supplied to me by Mr F. S. Houghton; it is from the *Camden Society's Letters*, edited by Mr Wright, p. 48.

religious grounds but is due to a scandal regarding some one particular lady. It does prove indeed that between 1287 and the Dissolution, confessions were heard through something like low side windows; but it only proves that friars heard them in friars' churches; it does not prove that they were heard in parish churches by friars; it was the last thing indeed that a parish priest would permit, least of all in his chancel; nor does it prove that they were heard in this fashion in parish churches by parish priests; and it is the existence of thousands of low side windows in parish churches that has to be explained.



H. B. Lambley, Notts.

XIV. A more probable explanation is that when during Mass the words *Sanctus, Sanctus, Sanctus* were reached, and again at the Elevation of the Host, the shutter was opened, and a hand-bell was rung, so that anyone in the neighbourhood of the church, hearing the bell, might spiritually partake of the communion.[1] Mr Cole quotes the following passage in the "Constitutions of Archbishop Peckham" (1281): "*In elevatione corporis Domini pulsetur* campana in uno latere, *ut populares, quibus celebrationi missarum non vacat quotidie interesse, ubicunque fuerint, seu in agris seu in domibus, flectant genua*"; *i.e.*, at the Elevation of the Host a bell is to be rung on one side that people who have not leisure to attend Mass daily may bend their knees, wherever they are, whether in the fields or in their houses. But a second version of Peckham's injunction is as follows: "*In elevatione corporis Christi ab una parte ad minus campanae pulsentur . . .*" And there is also a third version, as follows: "At the Elevation of the Body of Christ the parishioners shall adore with all devotion and reverence; wherefore let them first be warned by ringing the little bell, and at the Elevation let the great bell be thrice knolled."[2] Taking into account the first passage only, it has been argued that what is meant is that *one of the big bells of the tower is to be thrice struck with a hammer on one side.* In support of this it is pointed out (1) that the term for a big bell is *campana* or *signum.* But as a matter of fact the three terms *campana, campanula,* and *tintinnabulum* are interchangeable. For Lyndewode quotes another injunction of Peckham that when a priest goes to administer Extreme Unction he shall have with him bell

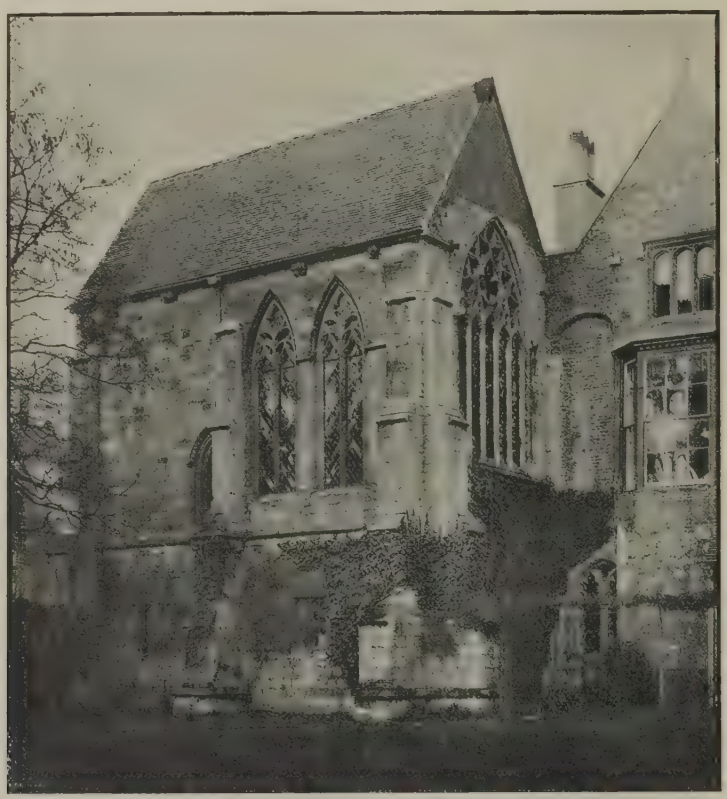
[1] This theory was suggested in 1848 by Mr J. J. Cole in the *Archæological Journal,* v. 70.

[2] North's *Bells of England.*

G. G. B. Hanslope, Bucks.

G. G. B. Milton Keynes, Bucks.

and lamp, "*campana et lucerna*"; here *campana* can only mean a hand-bell. Moreover Lyndewode himself, in his commentary on the passage, speaks of the bell as *campanula*; "the priest on his return from the sick bed is not to have the bell rung," "facere quod non pulsetur *campanula*." And Archbishop Winchelsea (1292-1313), in repeating the injunction, directs that a *tintinnabulum* is to be borne before the Host when the priest sets forth to administer Extreme Unction. Secondly,



G. H. T. Ely: Prior Crauden's Chapel

it is urged that the technical meaning of "*pulsare*" is to strike the outside of a bell with a hammer or mallet; and that therefore a hand-bell cannot be meant. But the passage from Lyndewode[1] quoted above—"*non* pulsetur *campanula*"—shews that the term *pulsare* could as a matter of fact be used of the ringing of a hand-bell. The third argument is that the phrase *in uno latere* does not mean that the bell is to be rung "on one side *of the church*" but that a hammer is to strike "one side

[1] Lyndewode was Bishop of St. David's; he died in 1446. When he compiled the *Provinciale* he was dean of Arches, 1426-1433.

of the bell." But in the second version of the injunction, quoted above, the words run "*ab una parte* ad minus *campanae pulsentur.*" To translate this "the bells are to be hammered on one side at least" is nonsense. What is meant is clearly shewn in Lyndewode's gloss on the passage, in which he gives the following as the meaning: "Pulsentur ut sonent *in una parte ad minus.*"[1] What appears to be meant is that in all churches the bell is to be rung from at least one side of the *church*; *i.e.*, if it is not possible to ring a belfry bell (which of course would be heard in all

F. B. Eynsford, Kent

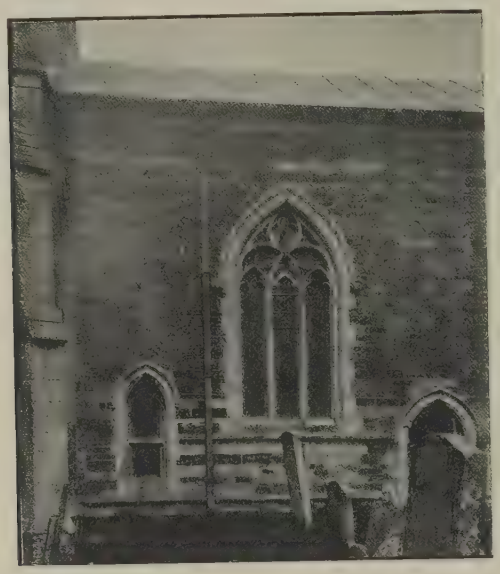
F. B. Barningham, Suffolk

directions) a hand-bell which will be heard in only one direction (being rung from a low side window) might be used.[2]

[1] Mr F. T. S. Houghton has kindly transcribed from the 1679 edition of Lyndewode's *Provinciale*, III. 23, p. 231, the whole passage in full. First comes Archbishop Peckham's injunction: "In elevatione Corporis Christi ab una parte adminus pulsentur campanae ut populares qui celebrationi missarum non valent quotidie interesse, ubicunque fuerint sive in agris sive in domibus flectant genua, indulgentias concessas a pluribus Episcopis habituri." Then follow the comments of Lyndewode: "*Pulsentur*: ut scilicet sorent in una parte adminus ut dicitur in textu." "*Campanae*: non intelligo de pluribus illo tempore pulsandis in una ecclesia, quia sufficit unam sonari; sed pluraliter loquitur respectu plurium ecclesiarum. Et haec pulsatio fieri debet de campanis istis quae longius possent audiri, quod satis patet per rationem quae sequitur."

[2] On holidays of obligation, of which there were plenty, on which all parishioners were bound to attend the *parish* Mass, there might not be room for all in the church, and a certain number might be forced to

The whole difficulty is removed if it be allowed that there was no uniform use as to the ringing of the sacring bell. It may be that in the Greater churches the common use was that of Winchelsea; that a little bell, the *sance or saunce* bell, was rung at the "Sanctus, Sanctus, Sanctus," and that at the Elevation a big bell in one of the towers was rung. That a big belfry-bell was sometimes rung is certain, for Lyndewode distinctly writes that the "pulsatio fieri debet de campanis illis *quae longius possent* audiri"; "the bell to be rung is one which can be heard afar off."[1] An arrangement like this would be convenient in the Greater churches,



F. B. Liddington, Rutland

W. M. Walgrave, Northants

even if the bell used were in one of the western towers; a simple system of signalling would enable the ringer to strike the bell at the right moment.[2] And

follow the service as they could from outside. The small bell would be a great help to these. I have more than once seen people kneeling outside churches in Ireland on such days, when the church was crowded for Mass. One may see to-day the practical use of the sance-bell in foreign churches—*e.g.*, at Bruges, on the feast of the Holy Blood, the ambulatory of the cathedral choir is crowded by people who, owing to the high screens, cannot follow the Mass, and walk about and talk. When the sance-bell sounds, they know where they are in the service, and kneel until the last ringing at the elevation of the chalice.—A. H. T.

[1] It is to be remembered that the original reason for placing a peal of bells in a belfry was not so much to ring them as a peal (it was not till late that the founders learnt to cast bells fairly true to note or to tune them) as to provide a separate bell for each service; *e.g.*, most belfries had an *Angelus* bell to remind folk to say their prayers morning and night. So here the sound of one particular bell, struck thrice, was to be the signal of the Elevation.

[2] At High Mass in Bayeux cathedral on Easter Sunday at the Elevation the whole of the bells in the western towers are "clashed" or "fired" for some minutes.

it is possible that the archbishop's injunction was mainly meant for the Greater churches; *i.e.*, the cathedrals, the monastic churches, and the larger collegiate churches.[1] For the parish churches as a rule the injunction could only have been a Counsel of Perfection. Their bells[2] usually hung in a western tower, and it is not likely that as a rule the parish priest at daily Mass had more than a single server, the parish clerk or a boy. But if a bell in the western tower had to be sounded at the Elevation, a second server would have to be stationed beneath the belfry for the purpose; it is very unlikely that so elaborate a procedure was in

F. B. Easby, Yorkshire

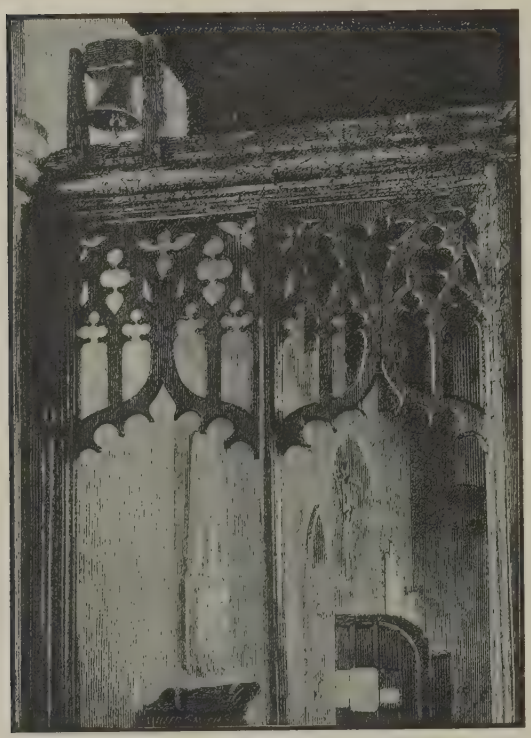
H. W. St. Michael's, St. Alban's

common use. If, however, the village church had a central tower, then one of the big bells could be sounded from below by the parish clerk, as it is at this day at

[1] It is a striking fact that no low side windows are known to occur in England in any cathedral or in any of the larger monastic or collegiate churches, except a single example in Boxgrove Priory church. This certainly looks as if the common practice in these churches at the Elevation was to ring a belfry-bell. Even if there had been an opening in the wall of a monastic church, it would seldom have been accessible to the laity, for such churches invariably stood in a walled precinct.

[2] That some at any rate of the parish churches rang the sacring and sanctus bells in the western tower is certain; for in the Inventories of Church Goods of Edward the Sixth's reign there are numerous entries to that effect, *e.g.*, at Tydd St. Giles, Cambridgeshire, "Item in the steeple three great Bells. Item another little bell standing on the ground" (probably the sacring bell) "and a Sanctis bell." At Whittlesea St. Mary, "Item in the steaple iij great bells a Sanctus bell and ij handbells and a Sacrey bell." See Walters' *Church Bells of England*, 123.

Carshalton, Surrey. In this case no low side window would be wanted. Comparatively few parish churches, however, had a central tower, and so they would not be able to comply exactly with the injunction. If, however, they could not comply with the letter of the law, they could with the spirit. This they did in several ways. Sometimes a small bell was fixed on the chancel screen, as may still be seen at Hawstead, Suffolk (690), and Salhouse, Scarning, Yelverton, and Wiggenhall St. Germans, Norfolk. It was, however, much more common to build



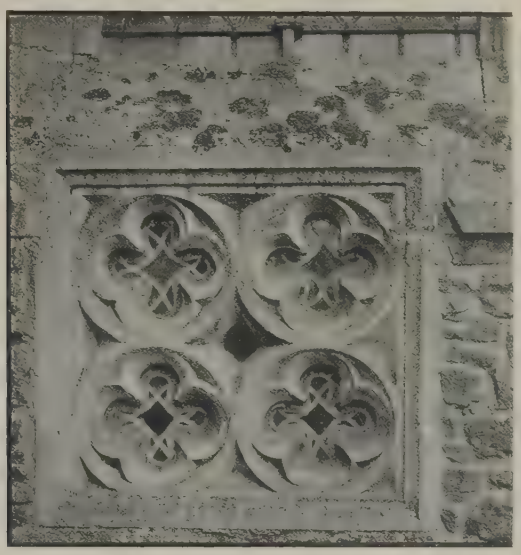
H. B. W. Hawstead, Suffolk

H. B. W. Idbury, Oxon.

a bell-cote on the eastern gable of the nave, containing a small bell, the rope from which dangled down inside the chancel screen: large numbers of these sanctus bell-cotes survive, *e.g.*, at Welbourne, Lincolnshire (683), Walpole St. Peter (848), sometimes with the original bell inside; *e.g.*, at Idbury, Oxon. (690), and Wrington, Somerset (904), both with inscriptions; and an uninscribed bell at Brailes, Warwickshire.[1] There is evidence also that occasionally a wheel of small bells was employed, as still commonly in Spain (696). At St. Andrew's, Canterbury, in

[1] In an MS. in the British Museum illustrated in Walters' *Church Bells of England*, 127, the server is shewn at Mass pulling the rope of one of two bells in a bell-cote or else a central tower.

1517, the churchwardens paid "for the making of a whylle to the wakrell" or sanctus bell. "In the church of Brokenborough, Wilts.," writes Aubrey, "an



G. H. T. Dersingham, Norfolk

F. B. Tatsfield, Surrey

W. M. Othery, Somerset

old man told me that his father, who died twenty-four years since, was one hundred and ten at his death, and remembered in the time of the old law eighteen little bells that hung in the middle of the church, which the pulling of

one wheel made them all ring, which was done at the Elevation of the Host." A wooden case, which has the appearance of having once held a wheel of bells, hangs high up in the transept wall of Milton Abbey, Dorset (693). One somewhat similar is to be seen at Tewkesbury. In any case, we may take it as likely that the archbishop's injunction to employ a big bell was pretty generally disregarded in the parish churches.

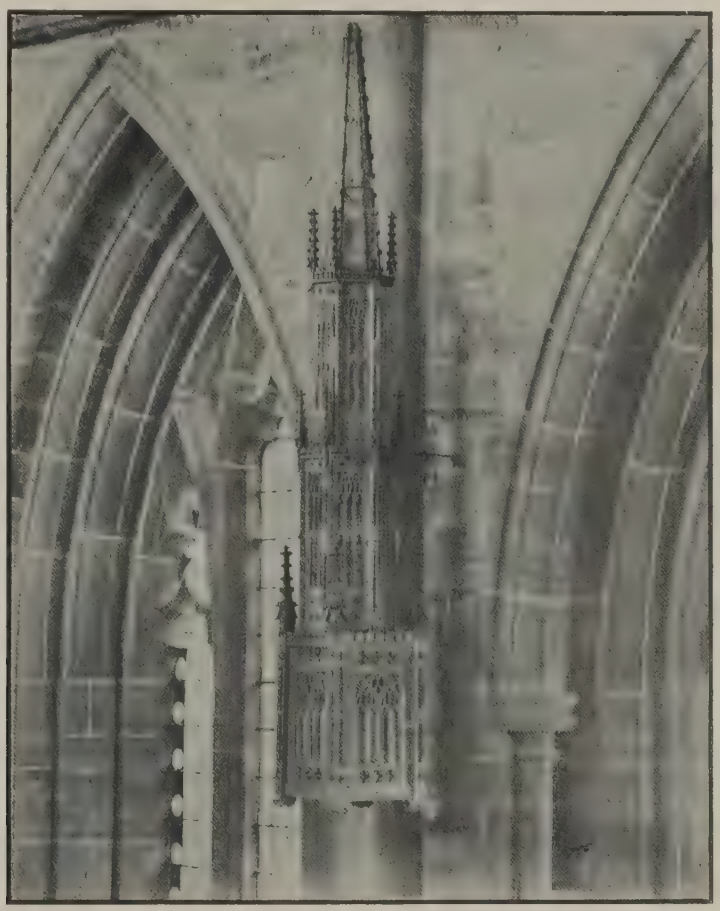
It has been objected that where there is a low side window, there is sometimes also a sanctus bell-cote. But that might easily happen in the long history of a church.

F. T. S. H. Oxhill: Interior from South-east

It might begin with a low side window in the wall of the chancel, and then if the nave was rebuilt, its gable might be provided with a bell-cote, as at Lambley, Notts. (684); or *vice versa*.

Again, it is objected that the apertures are sometimes so small that a hand-bell could not be passed through them; *e.g.*, at Dersingham, Norfolk, where the low side window is a small square opening blocked by four quatrefoiled circles (691). It is a mistake, however, to suppose that the opening was made for the purpose of pushing a bell through; in most cases the walls are far too thick for that. Evidently the custom has dwindled down to a ceremonial act: the ritual was satisfied if the

shutter was opened, and the sound or some of it was allowed to pass outside when the bell was rung by the server, kneeling in his usual place behind the celebrant. On the same assumption, viz., that the act had become merely ceremonial, we may account for low side windows which are high up above the level of the churchyard. If there was a "wheel of bells," it might easily be attached to the wall high up,



C. F. N. Milton Abbey, Dorset

near the "low" side window. The same would be the case if a single bell and not a wheel was employed; a single bell was not uncommonly fixed, as we have shewn, to the chancel screen; there is therefore no inherent improbability that here and there it was fixed to the wall.[1] The same argument applies to low side windows

[1] The Seven Sacraments' fonts at Gresham, Brooke, Cley and Marsham, Norfolk, in the representations of the Elevation, do actually shew a small bell hanging high up in a case on the right-hand side of

south of the altar or in the east wall of the chancel; it would be easy to provide them with a rope to be pulled by the server where he knelt behind the celebrant.

Observation shews that the majority of these windows face the more populous part of the village. This is not without purpose. For some mysterious reason the great majority of village churches are built on the north side of the village: therefore the chief doorway of the nave as well as the priest's door in the chancel are situated in the south walls of the church. It was therefore natural that to warn the village to the south that the Elevation was about to take place, the low side window should normally be in a south wall. Where the village is to the north, the window would naturally be placed in a north wall, *e.g.*, Oxhill, Warwick (629). But there are several cases where these windows face districts with few or any houses. The suggested explanation of their varying position is that they were really part of the equipment of altars, and consequently might be inserted wherever in the church there was an altar. Now in a pre-Reformation church there were always other altars beside the principal altar in the chancel. If it had transepts, there would be an altar or altars in each transept. If the nave was without aisles, there might be an altar on either side of the doorway in the chancel screen; if it had aisles, the eastern bay of each was usually screened off to contain an altar: so also at times was the western bay of each aisle. Any chantry chapels added to chancel or nave would also contain altars. When, therefore, Mass was said at any of these minor altars, the bell would naturally be rung at the low side window, where there was one, adjacent to that altar.

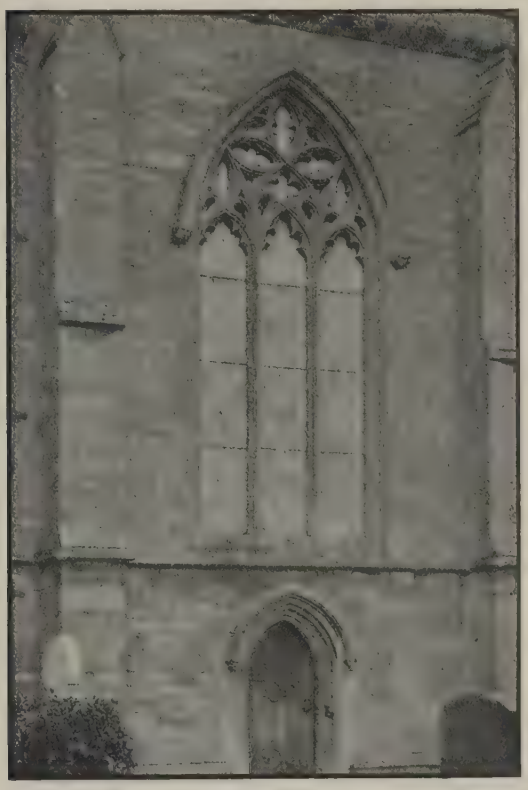
H. T. E. Bottesford: Sacring Bell

We have seen that some of the low side windows had gratings, and most, if not all, a shutter. This presents no difficulty if the sanctus bell theory be adopted; it is fatal in the case of all the theories in which it is postulated that the window was intended for the use of some one outside the church. As for the seat and book rest, they occur very seldom; where they are seen, it may be that in that particular church it was customary at times to have an additional server, whose function was to

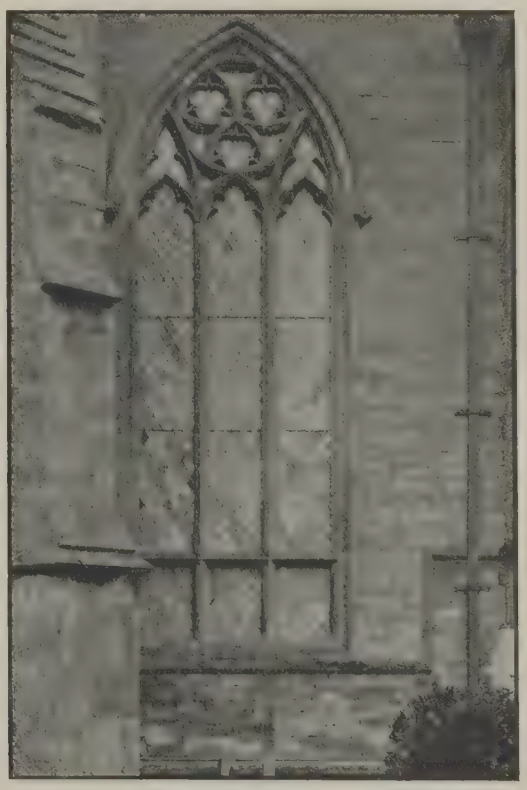
the altar; down from it hangs the rope; that at Gresham is illustrated in the writer's *Fonts and Font Covers*, 271.

ring the sacring and sanctus bell: till the moment arrived for it he would take his seat by the low side window with his missal on the book rest.

A curious testimony to the custom of ringing a bell at Mass out of a window was adduced by Mr John Pigot;[1] it occurs in the *Autobiographical Narrative of Thomas Hancock, Minister of Poole*;[2] it runs as follows: "This satisfied not the Papistes; but they wold have ther masking mas, and soo did olde Thomas Wright, John Notherel and others bwylde upp an alter in the churche, and had procured a



G. G. B. Olney, Bucks.



G. G. B. Olney, Bucks.

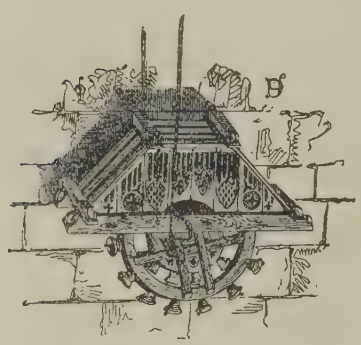
fytt chaplin, a French prest, on Syr Bysse, too say there masse, but there altar was pulled downe, and Syr Bysse was fayne to hyde hys hedd, and the papistes to bwilde them an alter in olde Master Whyghts howse; John Craddock, hys man, being clarcke *to ring the bell and too help the priest too mas, until he was threatened that yf he dyd use to putt hys hand owtt of the window to ring the bell*, that a hand goon sholde make him smartt, that he sholld not put in again hys hand with ease." It

[1] *Ecclesiologist*, xxix. 80.

[2] *Camden Society Publications*, vol. 77, p. 71.

is possible that this refers to ringing a bell before service; but the fact that it was rung by John Craddock, *as server*, "helping the priest at Mass," makes it much more likely that the reference is to the ringing of the sanctus bell at the Elevation.

One difficulty remains, which it is not easy to explain. At Othery, Somerset, in the south wall of the chancel, is a square aperture in the lower part of one of the two lights of a fifteenth-century window; its wooden shutter and ironwork remain. There is a central tower built at a later period, and one of its buttresses, which are set diagonally, projects across and in front of the aperture. The buttress is so near the aperture that no one could have used the latter as a confessional; for it is but $8\frac{1}{2}$ in. to the nearest point of the buttress and 2 ft. 3 in. to the furthest point. The strange thing is that the buttress itself is pierced with an opening in a line with the wall-aperture; the opening is 3 ft. 3 in. long, and is 2 ft. 7 in. by 2 ft. 1 in. It may be that it was thought that the projecting buttress would block too much of the sound of the sanctus bell,[1] and was therefore perforated (691).



H. T. E Gerona

On the LOW SIDE WINDOW see:—J. H. Parker in *Archæological Journal*, iv. 314; J. F. Hodgson in *Archæologia Æliana*, xxiii. 43; P. M. Johnston in *Sussex Archæological Collections*, xli., xlii., and *Surrey Archæological Collections*, xiv., xvi., *Transactions of St. Paul's Ecclesiological Society*, iv. 263, the Sussex and Surrey volumes of the *Victoria County History*, and *Archæological Journal*, lxv. 41; F. T. S. Houghton in *Transactions of Birmingham Archæological Society*, vol. xxxii., on "The Low Side Windows of Warwickshire Churches"; Mr Harry Gill in *Transactions of the Thoroton Society*, 30, xi. 10; and *Memorials of Old Nottinghamshire*; C. A. Markham in the *Associated Architectural Societies Reports*, 14th December 1908, on "The Low Side Windows of Northamptonshire Churches; Father Thuston in a paper read to the Cologne Eucharistic Conference; Dyer's *Church Lore Gleanings*, 209; Cox's *Derbyshire Churches*, iii. 298, 418; Cranage's *Churches of Shropshire*, last volume; Bloxam's *Gothic Architecture*, 11th edition, ii. 127; Paley's *Gothic Architecture*, 240; Parker's *Glossary of Gothic Architecture*, vol. i. 294; Rock's *Church of Our Fathers*, new edition, iii. 94; Brandon's *Parish Churches*, 15, 60, 86; Ecclesiological, late Camden Society's *Handbook of English Ecclesiology*, 201 (1847 edition); *Ecclesiologist*, v. 164, 187; vii. 65, 101, 141; viii. 48, 281, 374; ix. 113, 187, 252, 348; xi. 62; xiii. 215; xix. 86, 149, 310; xxix. 80; *Gentleman's Magazine*, Ecclesiology volume, 89-95; *Sacristy*, ii. 362; *Reliquary*, 1868, ix. 9; xxiv. 129; *Archæologia*, vol. x.; *Archæological Journal*, iii. 288; iv. 314; v. 70; xi. 33; xxix. 170; lxii. 19; lxiii. 1; lxv. 35, 41; *British Archæological Journal*, xvii. 273; *Antiquary*, xxi. 122, 217. A full account of sacring and sancte bells and bell-cotes is given, with illustrations, in Mr H. B. Walters' *Church Bells of England*, pp. 123-134.

[1] In some churches probably different bells were used at the Sanctus, Sanctus, Sanctus and the Elevation; in others, the same bell at both; where there were two bells, the former is styled the Sance bell, the latter the Sacring bell; the former was the larger of the two. There are numerous references to them in Churchwardens' accounts.

CHAPTER X

DOORWAYS AND PORCHES

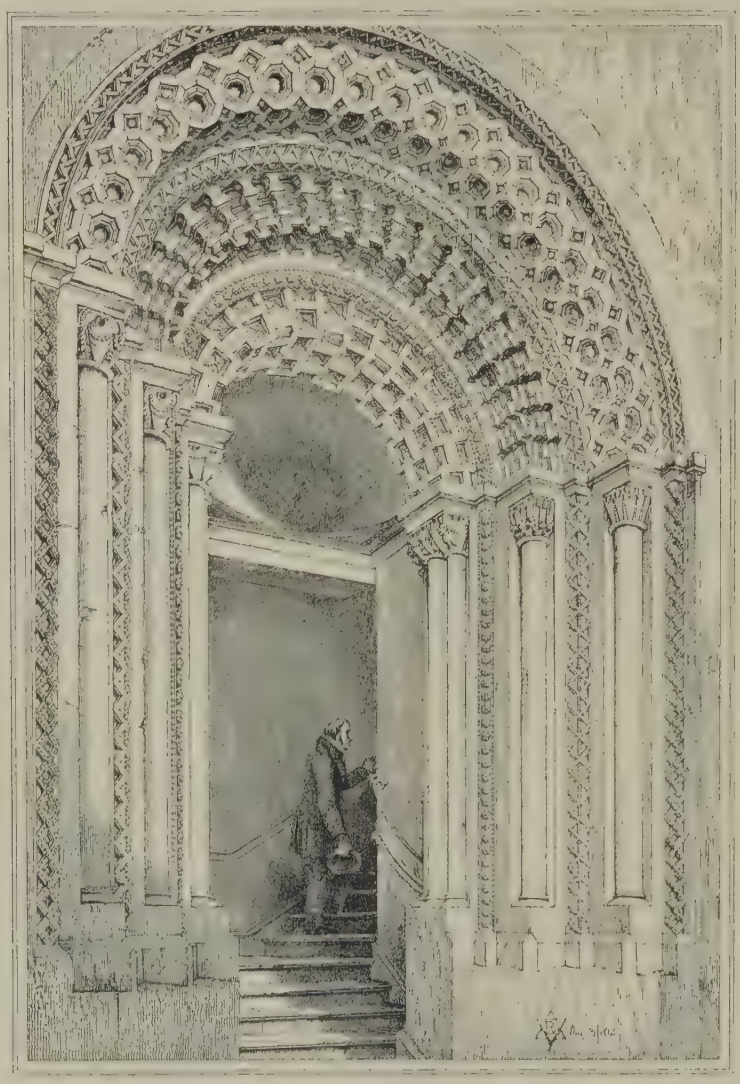
DOORWAYS

A MAN building a hut would naturally construct the doorway of two uprights and a lintel or cross bar of wood. Were stone employed instead of wood, the tendency would be still to employ a lintel. Stone lintels occur in the rude doorways of pre-Norman churches as well as in Greek temples and Byzantine churches. This is all very well for narrow openings; for wide openings it is bad construction, stone being well suited to resist compression, but not strain. Roman, Romanesque, and Gothic architects, therefore, being desirous to use stone in compression, preferred to employ arches rather than lintels over their doorways. But for a considerable time traces of lintel or trabeated construction survived. In early Romanesque the doorway was sometimes an oblong opening, and to protect the lintel from being snapped by the weight of the walling above, a *relieving* or *discharging* arch was built over it, to relieve the lintel of the weight and to discharge it on either side; this is well seen in the ninth-century church of S. Vincente in prato, Milan (697). After a time decoration was applied to the arch as well as to the lintel, and it was made equally prominent and conspicuous; moreover, the space above the lintel and below the arch, *i.e.*, the *tympanum* of the doorway, also received decorative treatment; *e.g.*, Kilpeck, Herefordshire (703), and the west procession doorway of Ely nave (704).

F. B. Milan: S. Vincente in prato

But in spite of the relieving arch, the builders were often uneasy as to the safety of the lintel. Various methods were adopted to secure it. One was to give it further support at each end. This could be done by inserting corbels at the top of the

jambs beneath the ends of the lintels; or it was feasible to employ a *shouldered*, or, as it is also termed, a *Carnarvon* arch, from its frequent use in Carnarvon castle.[1]



R. B. Durham Castle: Doorway

Or a horizontal arch with joggled joints[2] might be employed. Or a coursed lintel, *i.e.*, a flattened arch consisting of voussoirs, could be used; *e.g.*, at Dorchester,

[1] This is a corbel, with the lower edge concave instead of convex (434).

[2] A fine example of this arch is seen over the broad fireplace of the calefactory of Fountains abbey (432).

Oxford, and Lilleshall abbey, Salop (703). The simplest method, however, where the doorway was wide, was to support the centre of one lintel or the ends of two lintels by an upright post (French *trumeau*). This is very common in French Gothic, where the doorways are usually much wider than in England. Double doorways of this kind are most common in the thirteenth century; *e.g.*, in the transepts of Beverley and Lichfield (712) and the west ends of Salisbury, Croyland, Lichfield (712), and Higham Ferrers (713). They must, however, have been objectionable, in that

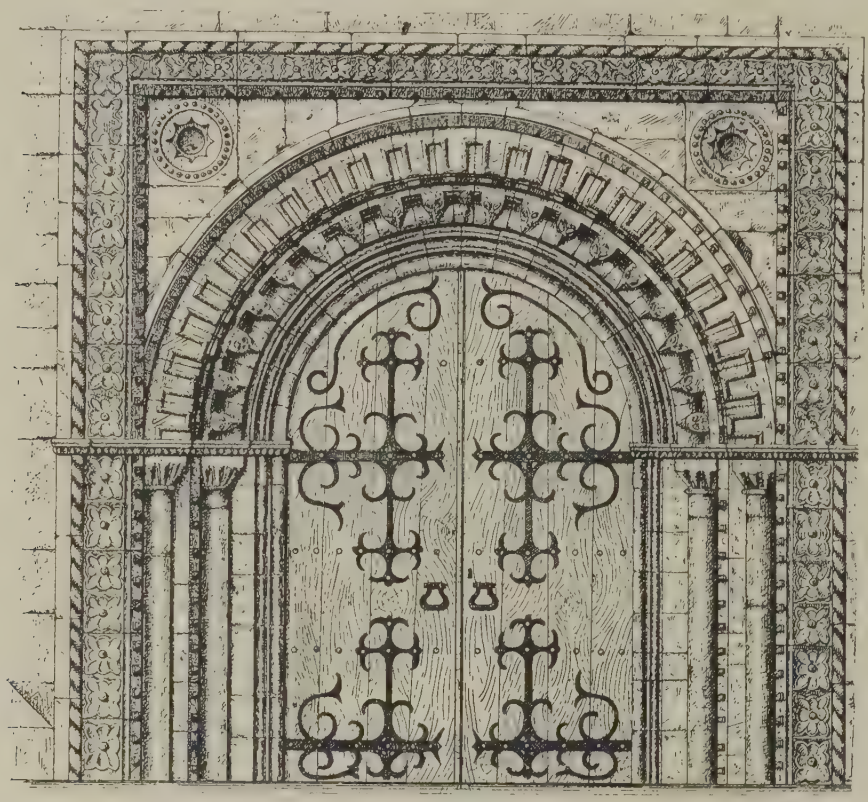
W. H. Ely: Eastern Procession Doorway of Nave

they presented an obstacle to the numerous processions, in some of which the shrine of the patron saint of the church was carried forth into the streets, while in others the Host was brought out beneath a baldachino.[1] This objection did not apply to the Chapter house, where the double doorway remained common; *e.g.*, at Westminster, Southwell, Wells, York (709), and Salisbury (710). West

[1] In the procession outside the church on Palm Sunday the priests who carried the shrine with the Blessed Sacrament and relics, stepped forward to the western doorway with the shrine, and held it high up above their heads, and then the whole procession passed underneath the shrine into the church. "Intret processio per idem ostium in ecclesiam sub feretro, et capsula reliquiarum ex transverso ostii elevetur."—Rock's *Church of Our Fathers*, iv. 269.

Walton, Norfolk, possesses a somewhat exceptional example of the use of a *trumeau* in a parish church doorway.

On the whole the tendency was more and more, even in Norman days, to suppress the lintel and with it the tympanum.[1] This is to be regretted; for no part of the church offered so valuable a field for sculpture as the tympanum; it was near the eye; every one who entered the church saw it; and it was protected from



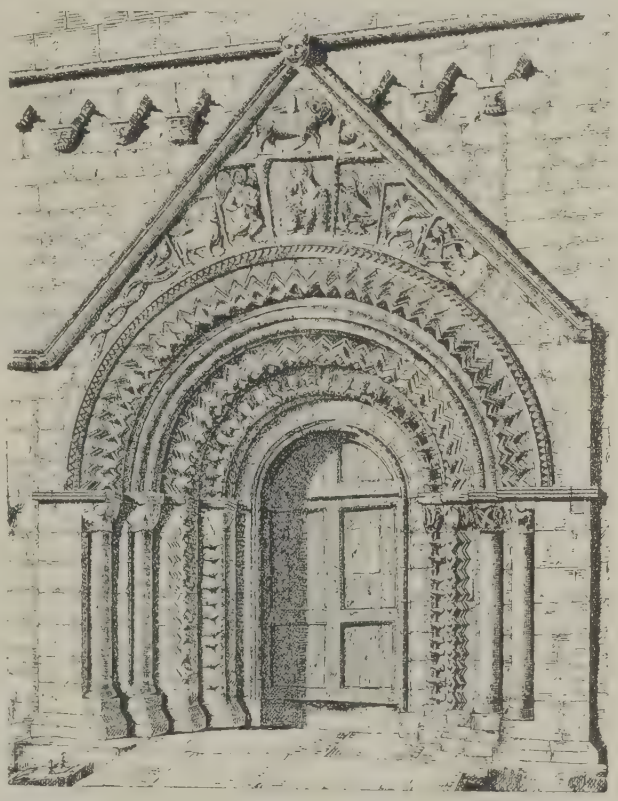
H. R. Kenilworth, Warwick

the weather by the projecting orders of the arch, and sometimes by a porch as well. The last important example of the sculptured tympanum is that of the presbytery of Lincoln, whereon is a representation of the Doom.

The form of the arch naturally varied with the period in which the doorway was built. Most Norman doorways are semicircular; but to get room for a window above, they may be segmental, as in the south transept of Southwell. So also thirteenth-century doorways are usually pointed as at Hedon (708) or trefoiled as at

[1] There are only five Norman doorways in Norfolk with tympana.—Dr Cox's *Churches of Norfolk*, i. 12.

Byland (710), but may be segmental, as frequently in Lincoln and Westminster; or, as often, semicircular, for similar reasons. From the fourteenth century the ogee arch, in spite of its non-constructional character, occurs at times in small doorways, *e.g.*, Lincoln (456); but most commonly a depressed form of the four-centred arch is employed, and is often framed in a rectangular *hoodmold* or *label*, as at Colyton (717) and Tiverton, Devon (718), and Kessingland (716), Wilby (726), Fressingfield (727), and Yaxley (725), Suffolk.



J. S. Adel, Yorkshire

Western doorways are occasionally absent even int he Greater churches; *e.g.*, in Romsey, a church of Benedictine nuns, and the Cistercian church of Buildwas; in smaller village churches they are generally omitted.[1] One of the greatest troubles in the design of the western façade was that, in order to light the nave well, a west window so large was wanted that the doorway below was reduced to insignificance; *e.g.*, at Louth. The idea of framing window and doorway into one composition, as at Oakham and Essendine, Rutland,[2] and Southwold, Suffolk, seldom found favour. The western doorway was not, as might be expected, the chief entrance into the church; this is shewn, among other things, by the fact that it is comparatively seldom protected by a porch. The smallness of their doorways has exposed our western façades to much unfavourable criticism, especially those of Wells cathedral; but in this case the western doorways merely led into

[1] So general is the omission of western doorways in mediæval parish churches that it has been held that the presence of one indicates that the church was either collegiate or monastic or dependent on some monastic church. Of 259 pre-Reformation churches in Shropshire Mr Cranage found only thirty with western doorways, and of these all but five belonged to one of the above three categories; of these five again two were probably not *in situ*.—Cranage's *Churches of Shropshire*, 1050.

[2] Illustrated in *Gothic Architecture in England*, 581.

the cemetery in front of the façade; the canons lived, as they do now, to the north of the church, and their doorway was in the magnificent north porch (708); while the townsfolk entered the nave by a doorway in the south-west tower. The French doorways, both Romanesque and Gothic, are on a far grander scale than ours. The explanation may be that with us there were ritual reasons making it necessary to have large porches; and the porch masked the doorway inside, and made it impossible to give it ample and dignified proportions.

In our churches the main entrance was to the south or north: usually to the south or north of the nave, but convenience now and then dictated exceptions, *e.g.*, the main entrances of York minster and Westminster abbey are transeptal. In churches of the Cloistered Orders the lay entrance was on the side of the nave opposite to the cloister; if the latter was in its normal position to the south of the nave, the lay entrance to the latter would be on the north side, as at Tewkesbury and Christchurch; if it was to the north, the main entrance for the laity would be on the south side, as at Canterbury and Gloucester. On the side next to the cloister there were always two doorways leading into the cloister; usually they are foolishly called "the Prior's doorway" and "the Monks' doorway"; as a matter of fact they were meant for the Sunday procession, which left the church for the cloister by the eastern of the two doorways and returned by the western one.[1] As a rule both these procession doorways are in the aisle of the nave adjacent to the cloister, and they open into the cloister; but local

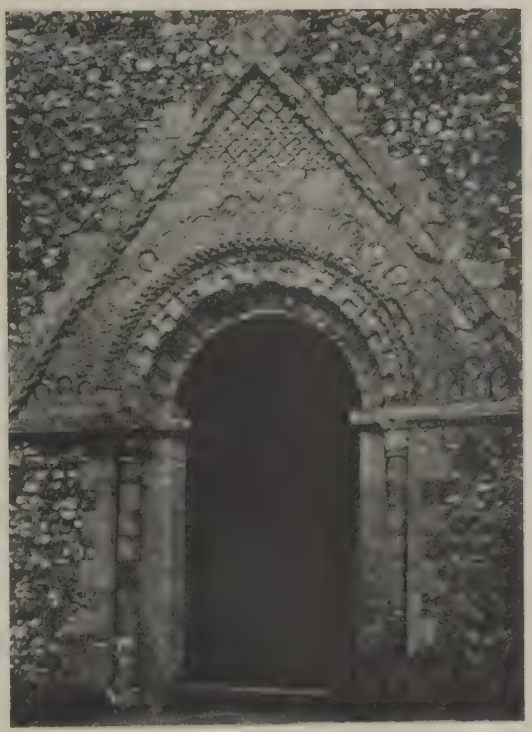
C. F. N. Colchester: St. Botolph

[1] Procession doorways are shewn in the plans of Gloucester (115), Canterbury (117), Croxden (119), Beaulieu (119), Romsey (121), Strata Florida (125), Bayham (125), Fountains (127), Salisbury (131), Wells (131), Waverley (133), Worcester (133), Jervaulx (137), Bolton (139), Finchale (141); in some cases one or more have been blocked up. At Salisbury the cloister was an afterthought, and could not be built adjacent to the nave, as it would have blocked the windows of the south aisle; this accounts for the anomalous position of the eastern procession doorway; compare Wells.

G. G. B. Kilpeck, Hereford

G. G. B. Leominster, Hereford

F. B. Lilleshall, Shropshire



M. C. St. Margaret-at-Cliffe, Kent

circumstances occasionally make it necessary for the eastern procession doorway to be in the transept, and the western one not to open directly into the cloister;

J. F. H. Ely: Western Procession Doorway

e.g., at Canterbury. In the Cistercian doorways the western processional doorway of the nave opened originally from the *cellarium*, *e.g.*, Croxden and Valle Crucis.

F. S. Iffley, Oxon. ; West Doorway

F. S. St. Alban's

Later on, another doorway was sometimes built, opening from the cloister. At Milton Abbey, Dorset, both processional doorways are in the north wall of the chancel; that is because the new nave projected was never built.

Nearly all parish churches appear to have had originally two doorways facing one another near the west end of the nave; nowadays one of the two has usually been blocked. One of these may have been intended for the parochial Sunday procession; usually it is the northern of the two. Near it may sometimes be seen tall cupboards in the wall either of the nave or of the western tower, in which were

F. R. P. S. Climping, Sussex: Doorway of Tower

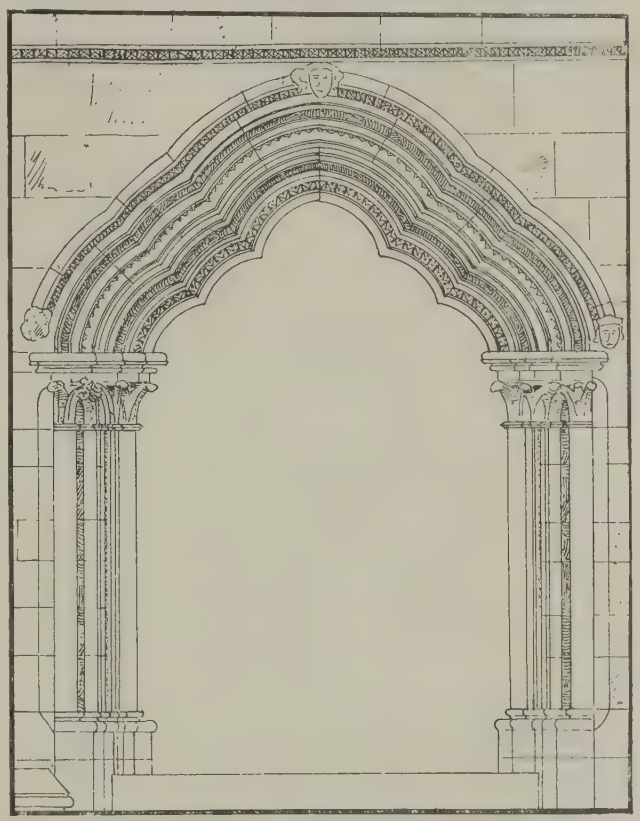
kept the poles of the crucifix and banners carried round in procession (93).[1] The nave of the parish church of Holy Trinity, Hull, has no northern doorway in the nave; but it is a cruciform church and has doorways in each transept.

In a side wall of the chancel there was usually a "priest's doorway." This had to be quite small, especially when it was in the south wall of the chancel, where space had to be found for piscina, sedilia, and often for a low side window; a late example is shewn from Colyton, Devon (717); others at Easby and St. Michael's, St. Alban's

[1] There appears to be little documentary evidence for the Sunday procession in parish churches; but the facts cited above are difficult to explain on any other hypothesis. It would seem that the procession left the church by the northern doorway, and re-entered it by the southern one.

(689). When the chief entrance into the nave was on the south side, as it normally was, the priest's doorway would be in the south wall of the chancel; but at Patrington, Yorkshire, and elsewhere, where the parsonage and the village are on the north side of the church, the priest's doorway also is on that side.

So much success was obtained in the design of the doorways in the twelfth and thirteenth century that when the nave was extended laterally by the addition of aisles, it was common to transplant the old doorway into the new wall, as at Shere (see p. 246). It must be borne in mind, therefore, that the date of a doorway is not necessarily the date of the wall in which it is inserted, or *vice versa*.



W. J. L. York: North Transept

Norman walls were very thick, and therefore admitted of a doorway of many orders; but so effective were recessed orders that the doorway was sometimes made to project considerably beyond the external face of the wall, *e.g.*, at Iffley.

In the jambs of the doorways shafts were commonly employed; and in many cases were logically correlated with the orders of the arch above; *e.g.*, at Leominster (703) there are three shafts to match the three orders of the arch. In the west doorway of Byland the trefoiled arch has four orders, and originally it was supported by four shafts on each side (710). Shafts in jambs of doorways and windows appear to be a mediæval innovation, without precedent in classical architecture.

Much care also was bestowed on the staircases by which upper doorways were approached; *e.g.*, that of the Chapter house of Wells, and the incomparable example in Beverley minster (448).[1] Very charming, too, are the staircases in the thickness

[1] The Chapter house of Beverley minster, like that at Wells, was on the first floor and was approached by the thirteenth-century staircase shewn in the illustration; the doorway seen below led into an undercroft used probably as a sacristy or treasury.

F. H. C. Hedon, Yorkshire: North Transept

F. S. Wells: North Porch

of the wall by which the pulpit in the monastic refectories was reached; *e.g.*, at Beaulieu, Hants (Cistercian), and Chester cathedral (Benedictine) (446).

The earliest Norman doorways of the eleventh century were probably built in recessed orders, without either moldings or ornaments, like the pier-arcades, *e.g.*, at Blyth (418). About the middle of the twelfth century or later many of these plain, square-edged doorways were taken out and replaced by very elaborate and rich work; *e.g.*, those in the nave of Durham and the west front of Lincoln (468). The varieties of twelfth-century sculptured ornament on Norman doorways, shafts, capitals, etc., are very numerous; only some of the more important ones are illustrated:—

H. E. I. York: Doorway of Chapter House

(1) The *Billet* occurs in much eleventh-century work, as well as later: square billet at St. Augustine's, Canterbury, and Winchester cathedral; round billet at Binham priory, Norfolk (719).[1] (2) *Nailhead*; Upton St. Leonard, Gloucester; Ely; Bredgar, Kent; also the capitals of Lincoln west front (468); a band of diminutive nailhead encircles the thirteenth-century capital at Hemington, Northants (540). (3) When the nailhead is undercut, like a decayed tooth, the famous *tooth* ornament is formed; *e.g.*, Climping, Sussex (706). (4) The *Star*; Herringfleet, Suffolk; Hales, Norfolk. (5) The *Diamond*; Deeping St. James, Lincolnshire. (6) The *Lozenge*; Tickencote, Rutland; Adel, Yorkshire (701). This is formed by setting under a band of zigzag another band inverted. In late twelfth-century work it was very common to shew behind it a semicircular roll; *e.g.*, Broadwater, Sussex (493), and Durham castle (698). At Shere, Surrey (246), it occurs with a single row of zigzag. (7) Of all ornament the *Chevron* or *Zigzag* was the most common, especially in the twelfth century; *e.g.*, Deeping St. James; North Hinksey; Malmesbury; Bredgar; Lincoln; Iffley west doorway (705) and Colchester (702). (8) *Double Cone*; Stoneleigh, Warwick. (9) *Bead and reel*; St. Albans' slype. (10) *Chain*; square in the vault of St. Peter the East, Oxford; rounded in St. William's chapel, York. (11) *Cable*; Durham castle chapel, *c.* 1085; Romsey

[1] Except where indicated, the illustrations will be found on p. 719.

F. H. C. Byland, Yorkshire: West Doorway

F. R. P. S. Salisbury: Doorway of Chapter House

and Ely (699). (12) *Nebule*, Binham. (13) *Stud*; Hales, Norfolk. (14) *Medallion*; a larger form of stud; it is usually circular, but is sometimes rectangular, as at St. Albans (705), when it may be termed a *Plaque*; it is usually filled with foliage or figures, *e.g.*, the chancel arch of Llandaff cathedral. (15) *Bead* or *Pellet*; St. William's chapel, York; Jew's house, Lincoln; Malmesbury; St. Albans; Barfreston; Hales; Iffley south doorway (720); Kenilworth (700); Adel (701); South Stoke (548); New Shoreham (500). (16) *Open heart*; Jew's house, Lincoln. (17) *Lattice*; Malmesbury. (18) *Ballflower*; Lincoln; this had a great vogue, *c.* 1307 to *c.* 1327. (19) *Intersecting arcading*; St. Albans. (20) *Fret*; Sandwich; Barfreston; Kenilworth (700); St. Margaret-at-Cliffe (703). (21) *Sawtooth*; Barfreston; Hales; Canterbury (720); Adel (701); Christchurch (441). (22) *Buckle*; Iffley south doorway (720). (23) *Beakhead and Cathead*; Tickencote, Rutland; St. Cross (720); Iffley west doorway (720); Kenilworth (700); Adel (701). (24) *Shingle*; Christchurch (745). (25) *Interlacings*; Ely (704); Lincoln west doorway (468); Kilpeck (703). (26) *Palmette*; Durham cathedral (720); Lincoln west doorway (468); and Durham castle chapel (698). (27) *Rose*; Iffley (720). (28) *Square flower*; Iffley (720). (29) *Clematis*; Canterbury; this remained throughout the Gothic period (720).

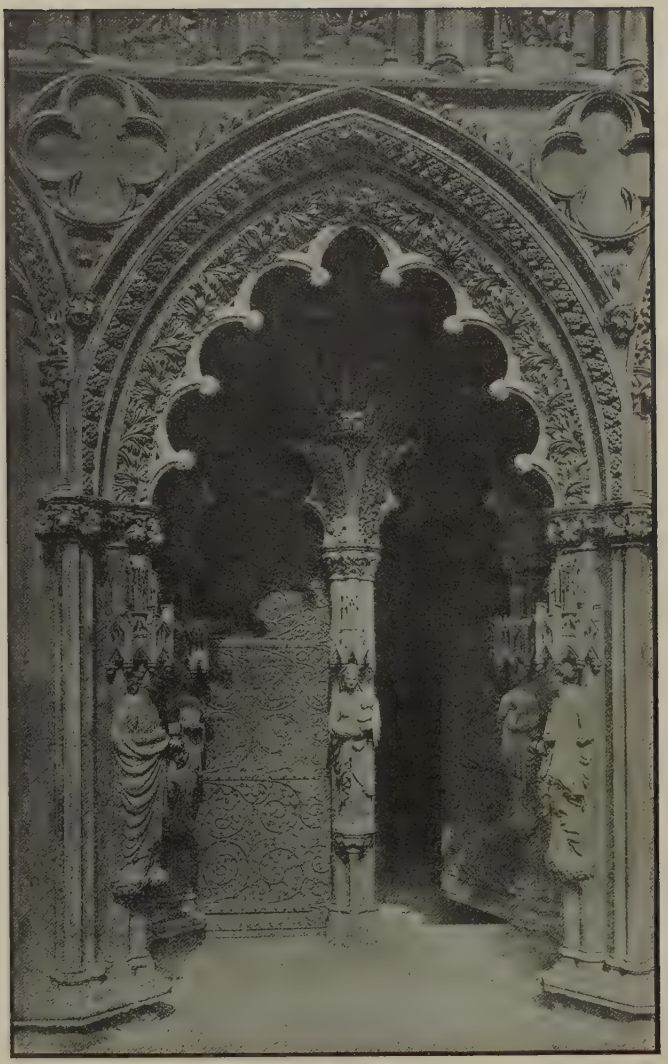
S. S. Lincoln Minster: Doorway into Choir

By the end of the twelfth century this vast multiplicity and complexity of ornament was almost wholly driven out of the field by the growing appreciation of shadow effect attainable by alternation of roll and hollow. A large number of lovely arches were designed without any ornament but moldings; perhaps the art of molding reached high-water mark at Lincoln in the second quarter of the thirteenth century; *e.g.*, the arcading of the Chapter house doorway (443), the west front (444), and the retro-choir (445). Where sculptured ornament was employed in addition, it was nearly always the *tooth* ornament, which may be the pyramid or nailhead hollowed beneath for shadow. This was easy to execute, and very effective, and was produced in thousands; *e.g.*, in the Galilee porch, Lincoln, the tooth ornament is repeated 5,355 times. In richer work the facets of the tooth were themselves richly ornamented; *e.g.*, at Ketton, Rutland; Lincoln minster; Chipping Warden, Northants; St. Cross, Winchester; Southwell minster; Dunstable; Stone, Kent (720); Lichfield transept (712), and at Binham and West Walton, Norfolk.[1]

The tooth ornament in time gave way to the *ballflower*, which was in greatest favour in

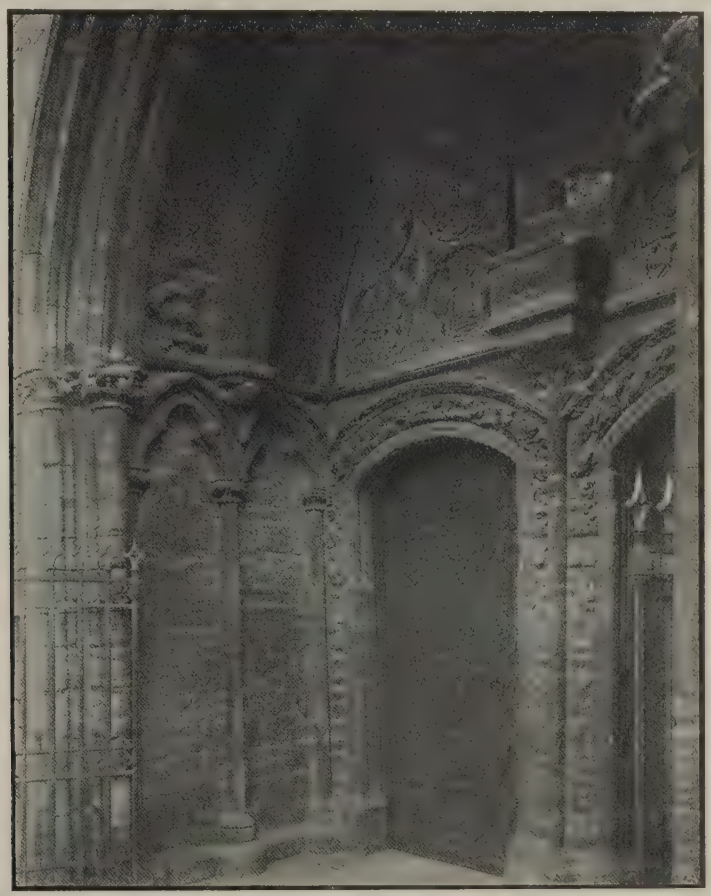
[1] See drawings in Colling's *Gothic Details*.

F. B. Lichfield : North Transept



F. B. Lichfield : West Doorway

the West of England; *e.g.*, at Leominster (590), Ludlow (600), Ledbury (604), and Gloucester (596). It occurs from the last quarter of the thirteenth to the third quarter of the following century, but was in most common use *temp.* Edward II. (721). It is found, though not commonly, in Romanesque architecture both here and abroad. Its origin may perhaps be found in the hawk's bell, or in the string of bells which used to be attached to the collars of horses and



C. F. N. Higham Ferrers, Northants: West Doorway

oxen. In later examples the ballflowers are often connected together by tendrils, as at Over (646) and St. Mary's, Oxford (721). Another contemporary ornament, also in great vogue, was a flower of four leaves expanded (the ballflower has three leaves incurved). This was usually of square form to fit in the cornices, etc., in which it was commonly employed. Examples are illustrated from York west doorway; Coggs, Oxon.; Grantham, Lincolnshire; and the Eleanor Cross near Northampton; in the latter, as was to be expected from the date, 1294, the foliage is naturalistic (721).

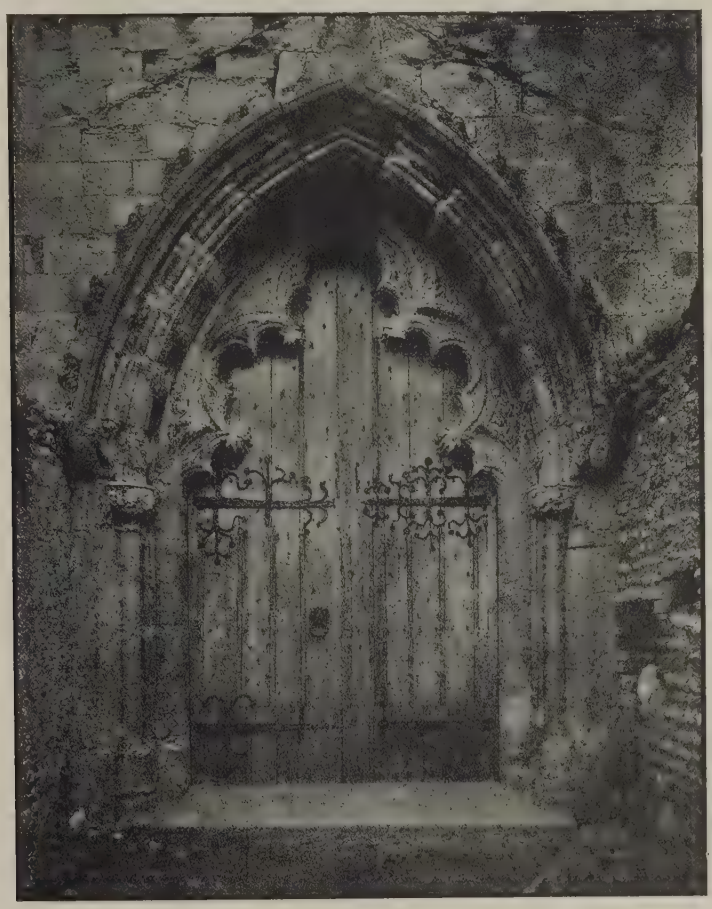
In later Gothic the four-leaved square flower is exceedingly common; *e.g.*, Porlock, Somerset; Ensham, Oxon.; and St. Albans.

Of the Norman doorways illustrated none is earlier than the twelfth century. That of *St. Botolph's priory, Colchester*, is of five orders, of which four have zigzag, and one is molded; the dripstone, which is without projection, is of Roman tiles. The priory was founded in 1102; the west front of the church would be considerably later (702). The two

G. G. B. Ledbury, Hereford: St. Catherine's Chapel

procession doorways leading from the cloister into the nave of *Ely* were probably inserted about the middle of the twelfth century. The western doorway has a tympanum, on which is sculptured a representation of Our Lord in Majesty, the left hand holding orb and sceptre, the right raised in the act of benediction; on either side are censing angels. The lintel carrying the tympanum is supported by corbels with masks. Jambs, shafts, and arches are covered with the interlacings which are common to all the Romanesque schools, but especially characteristic of those of Lombardy and Scandinavia (704). In the eastern doorway the cable

and scroll-work occur (with the latter compare the detail of the Ely Galilee, p. 509); it is remarkable that the inner order of the arch is cusped; but cuspation begins earlier in the arches of doorways than in the tracery of windows. Each cusp is a medallion, in which is inscribed a star (699). The tower doorway of *Climping*, Sussex, also is cusped.[1] From the dripstone of tooth ornament it would seem to belong to the closing years of the century. In

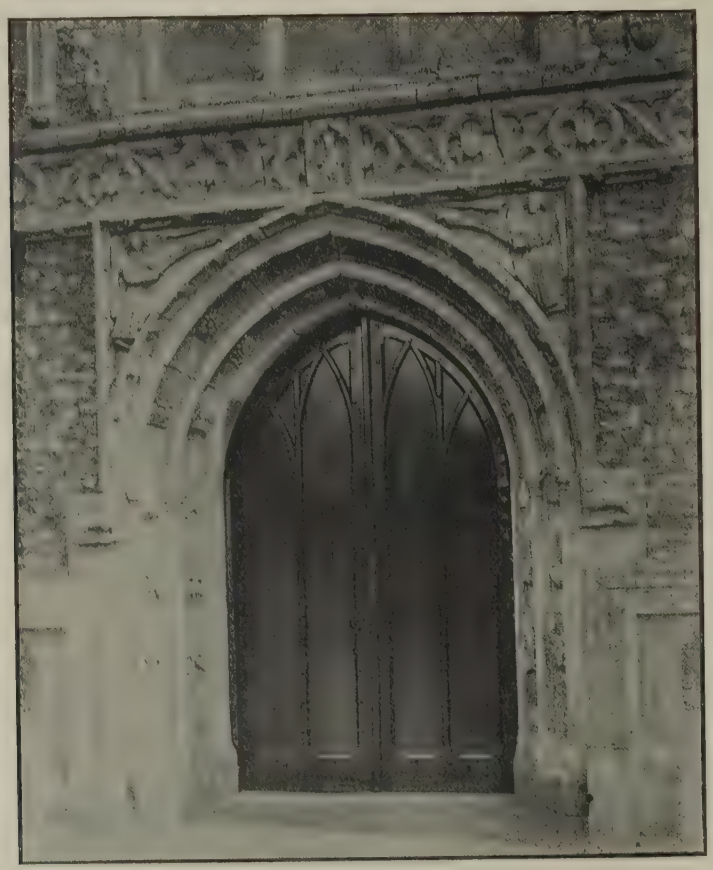


C. F. N. Cley, Norfolk: West Doorway

the treatment of the jamb shafts we see perhaps the origin of the double cone, *e.g.*, Stoneleigh (706). In the west doorway of *Iffley*, near Oxford, reliance is placed on zigzag and beakhead; the dripstone has a series of medallions (705). The southern doorway is of finer composition, with roses, square-leaved flowers, mermaid, zigzag, roll, sawtooth, beads, and buckles. Probably these doorways and that at Kenilworth were built soon after 1160 (720). It is remarkable

[1] Another cusped doorway arch is to be seen at Bibury, Gloucester.

that the *Kenilworth* doorway is framed in a rectangular hoodmold in the way so common in fifteenth-century work (700). The west doorway of *St. Margaret-at-Cliffe*, near Dover, is framed in a pediment, a fashion not common till *c.* 1300; this provides space for medallions and lattice-work (703). A companion to the rich doorway at *Kilpeck* is to be seen at Shobdon, Herefordshire;[1] for the interwrithing monsters of the shafts see also the west doorways of the Lincoln façade (703). The *Leominster* doorway is in the west front of the priory church, the



F. B. Kessingland, Suffolk

eastern part of which was consecrated in 1130; its obtusely pointed arch and capitals shew that it is late in the century (703). The doorway of *Lilleshall* abbey, Salop, except in its capitals, is thoroughly Romanesque; for the treatment of its jamb shafts Climping may be compared; the abbey was founded in 1145; the doorway is considerably later (703). The doorway leading from the south transept into the slype at St. Albans is still more Romanesque; but the unusual type of ornament points to a date late in the century; notice the two bands

[1] Illustrated in *Gothic Architecture in England*, 415; see also 416 note.

of medallions; the inner order, however, is an invention of the late Lord Grimthorpe, who took, he says, "an unusual amount of trouble and superintendence to get the carving done so well that most people guess wrongly which are old and which are new stones: which makes antiquaries very angry, though it is what everybody wants, and seldom gets" (705). The doorway of *Adel* church, near Leeds, is framed in a pediment, like that of St. Margaret-at-Cliffe; above the doorways are some interesting subjects from the *Bestiaries*, which may be compared with those at Alne (701).[1] With such doorways are often associated chancel arches of great richness; *e.g.*, at Adel; and *Winchfield*, Hants: in this last the treatment of the soffit of the innermost order of the arch is very unusual in England, though common at Zamora in Spain: the naturalistic foliage of the capitals points to a date later than 1175 (430). In the doorway of Durham castle, which from its richness and refinement, and from the presence of the lozenge and roll, must be very late in the century, the high-water mark of Norman ornamentation is reached (698).

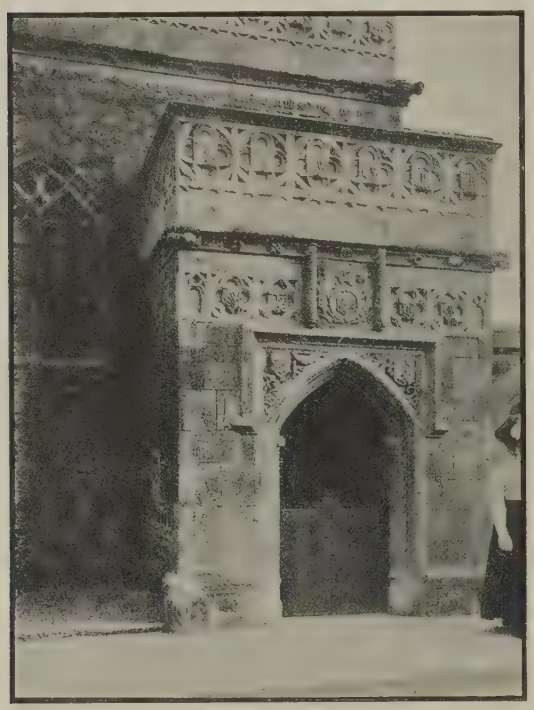
E. K. P. Colyton, Devon: Priest's Doorway

In the *Temple church, London*, of which the nave was dedicated in 1185, as also in the porch of Southwell minster, the contest between Romanesque and Gothic, between the costly sculptured and the economical molded ornament has already commenced; in both the outer doorway has adopted the Gothic ideal, the inner one remains Romanesque (734). In the doorway of the north transept of *Hedon* only the tooth ornament is employed, except on the capitals, which have a band of nailhead (708). In the north porch of *Wells* are seen two bands of lozenge and roll; and here we see perhaps an alternative origin for the tooth ornament (708). In the west front of *Lincoln* is a doorway leading into a coal-cellar (now being cleared out), in which the delicacy, multiplicity, and refinement of the moldings suggest a date contemporaneous with the doorway of the Chapter house; *i.e.*, 1220-1235 (444). Very delightful is the trefoiled doorway of the west front of *Byland abbey*; it is not earlier than 1180: note the consecration cross (710). The north transept of *York minster* was built between 1241 and 1260; in its eastern wall is a cinquefoiled doorway, with rich but minute and delicate ornament (707). At the entrance to the Chapter house of *Salisbury* is a doorway consisting of two pointed and cinquefoliated arches, framed in a pointed containing arch; in the centre of the

[1] See the writer's chapters on the *Physiologus* in *Misericords in English Churches*, 19-64, and J. Romilly Allen's *Christian Symbolism in Great Britain and Ireland before the Thirteenth Century*.

tympanum is a quatrefoil inscribed in a circle; the Chapter house was built between 1263 and 1284 (710).

The doorway of the Chapter house of *York minster* also has two pointed arches; these are trifoliated; above is arcading, which is pedimented; the date of the Chapter house may be *c.* 1300 (709). Singularly rich is the doorway of the north transept of *Lichfield*, *c.* 1240 (712); with the shallow porch of the western doorway, *c.* 1280 (712), may be compared those of Higham Ferrers, Raunds, and Rushden, all near together in Northants; the entrance of the first of these seems to be a work of the middle of the thirteenth century. On the corbel above the *trumeau* probably stood a statue of Our Lady, to whom the church is dedicated (713).



F. B. Tiverton, Devon: Almshouse

Of still more quiet and restrained design are the normal doorways of the early fourteenth century, such as *Welbourn*, Lincolnshire (723). *Snettisham*, Norfolk, is unique among parish churches in possessing a triple western porch (649). Sometimes, but rarely, doorways of this period are richly ornamented with ballflower; *e.g.*, Ledbury; *temp.* Edward II. (714). Perhaps the gem of the period is the doorway of *Cley*, Norfolk; first it is pointed; then it is trifoliated, the cusps feathering into leafage; then the lobes of the trefoils are trifoliated a second time: the upper ironwork is of the same period as the doorway (715).

Fifteenth-century and later examples are shewn from Kessingland, Suffolk (716), and Colyton, Devon (717); others will be found in the entrances of various porches illustrated.

PORCHES

A porch was built, wherever means allowed, in all our churches, parochial or non-parochial. In some eleventh-century churches abroad it was a western porch, very spacious and lofty, and sometimes two stories high; it is often spoken of as a *narthex*; it is better to call it a *Galilee*. It occurs, among other places, in the parish church of Gannat, Burgundy; in the Benedictine churches of Tournus and St. Benoît-sur-Loire; it was copied in the Cluniac churches of Vézelay, La Charité, Paray-le-Monial, and Cluny; Autun, a cathedral of Secular canons, Notre Dame de Dijon, and Saint-Père-sous-Vézelay also possess admirable examples. It is probable that all these great fore-churches were intended to give shelter to pilgrims till their turn came to be shewn round the church; in the ancient texts they go by the name of "Galilee." The explanation of the term is to be found in the fact that Sunday

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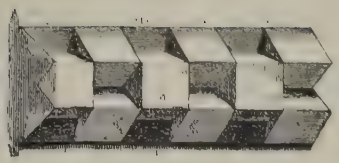

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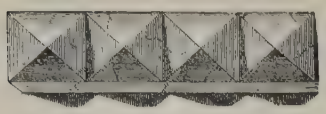

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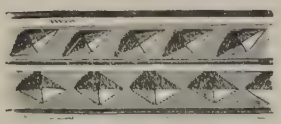

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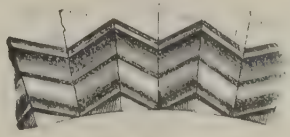

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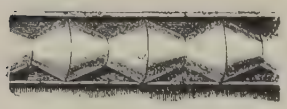

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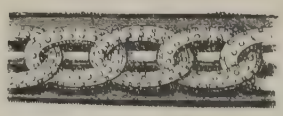

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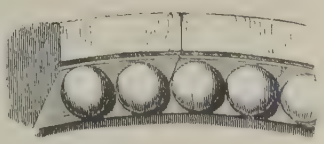

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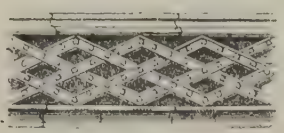

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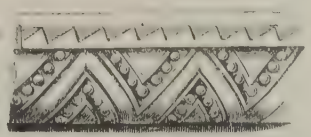
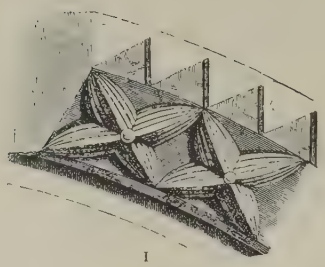


24

J. H. P.

1. St. Augustine's, Canterbury
2. Winchester
3. Binham
4. Upton St. Leonard
5. Ely
6. Herringfleet
7. Deeping St. James
8. Tickencote
9. North Hinksey
10. Malmesbury
11. Bredgar
12. Lincoln
13. Stoneleigh
14. St. William's Chapel, York
15. Romsey
16. Binham
17. Hales
18. Iffley
19. Jew's House, Lincoln
20. Malmesbury
21. St. Albans
22. Sandwich
23. Barfreston
24. Barfreston



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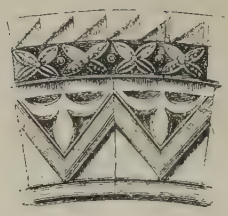

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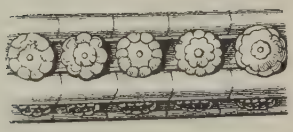

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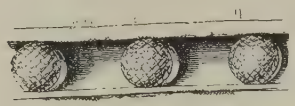

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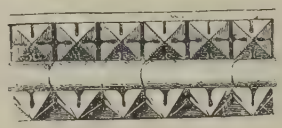

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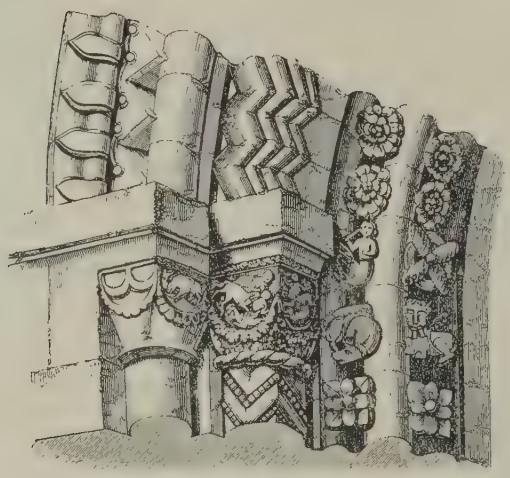

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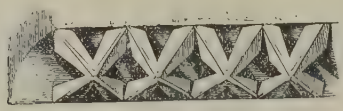

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J. H. P.

1, 2. Canterbury
3, 4. Iffley
5. Tickencote
6. St. Cross
7. Durham Cathedral
8. Iffley
9. Croyland
10. Ketton
11. Iffley: South Doorway
12. Lincoln
13. Chipping Warden
14. St. Cross
15. Southwell
16. Dunstable
17. Stone, Kent

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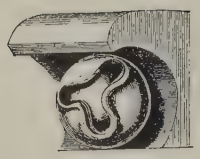

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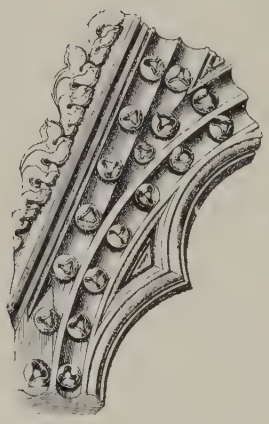

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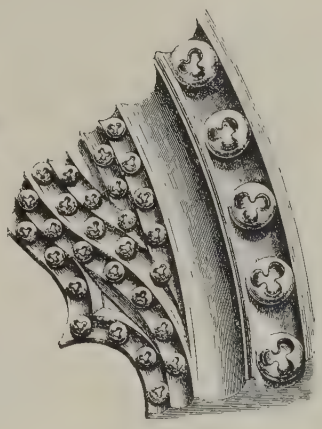

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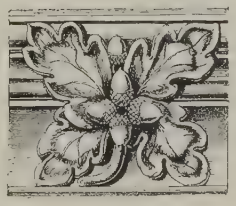

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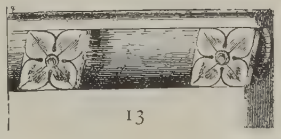

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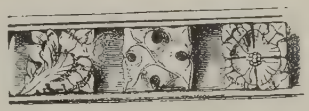

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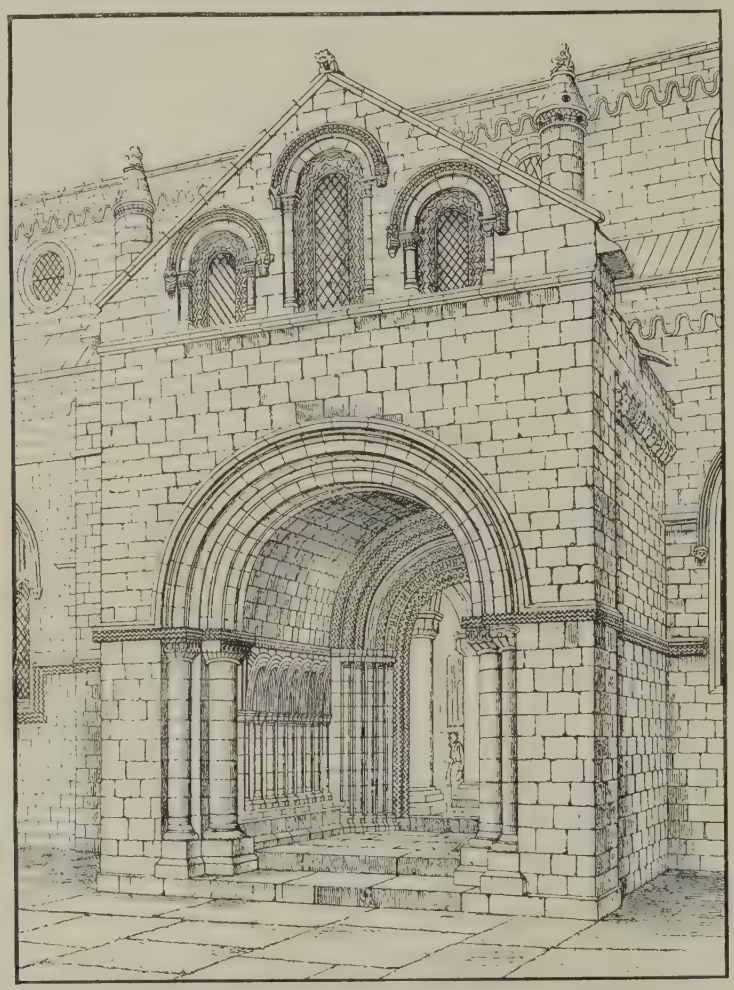
1. Lincoln Galilee
3. Kiddington, Oxon.
4. Oxford Cathedral
5. Gloucester Cathedral
6. St. Mary's, Oxford
7, 8. Salisbury Spire
9. Grantham
10. Queen's Cross, Northampton
11. York : West Doorway
12. Coggs, Oxon.
13. Porlock, Somerset
14. Evesham, Oxon.
15. St. Alban's

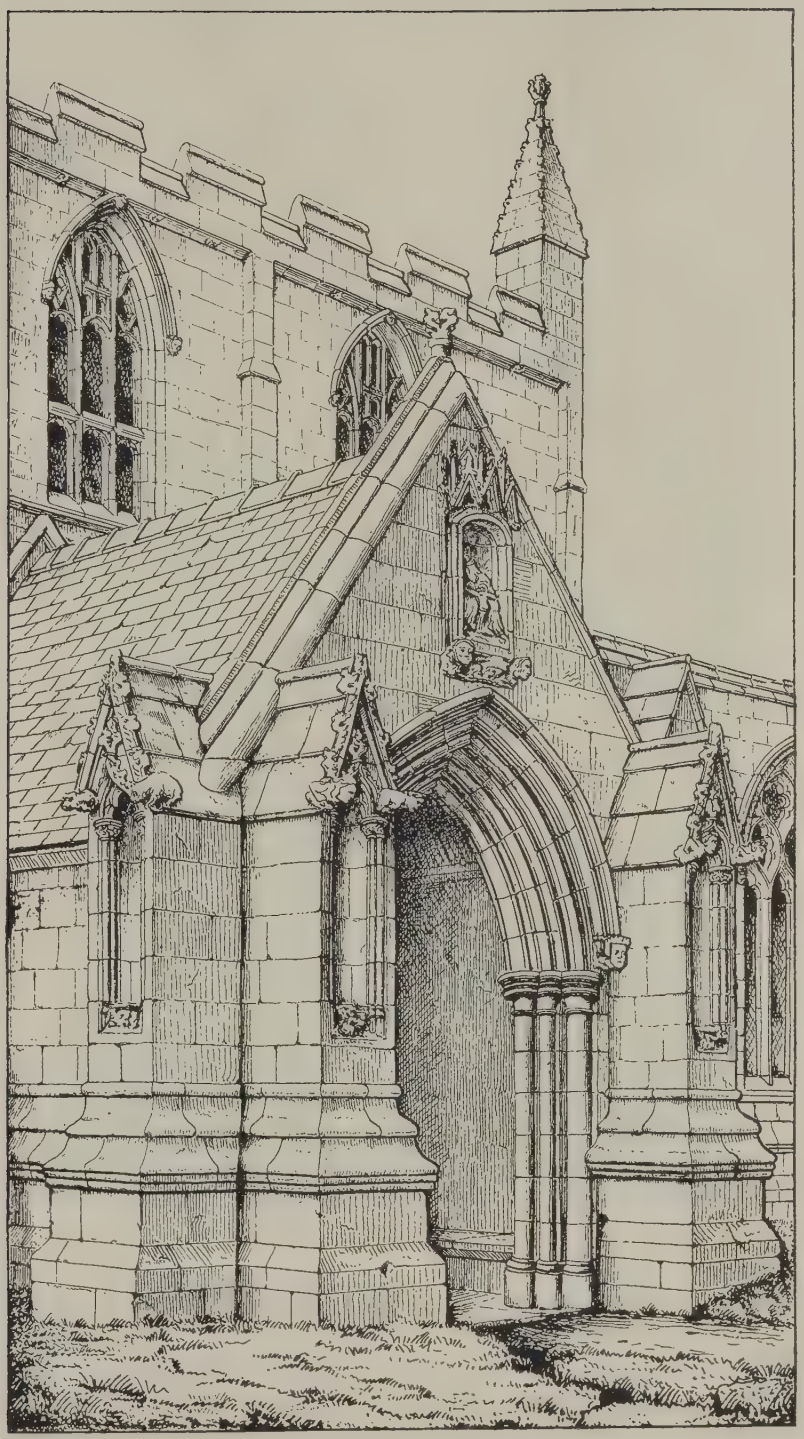
was the weekly festival of the Resurrection, and in the Sunday procession the person of greatest dignity went first, the rest following him in their order, symbolising Christ going before His disciples into Galilee after the Resurrection (St. Mark xvi. 7; St. Matthew xxviii. 10); "unde locum quoque, quo suprema statione processionem



T. R. Southwell Minster: North Porch

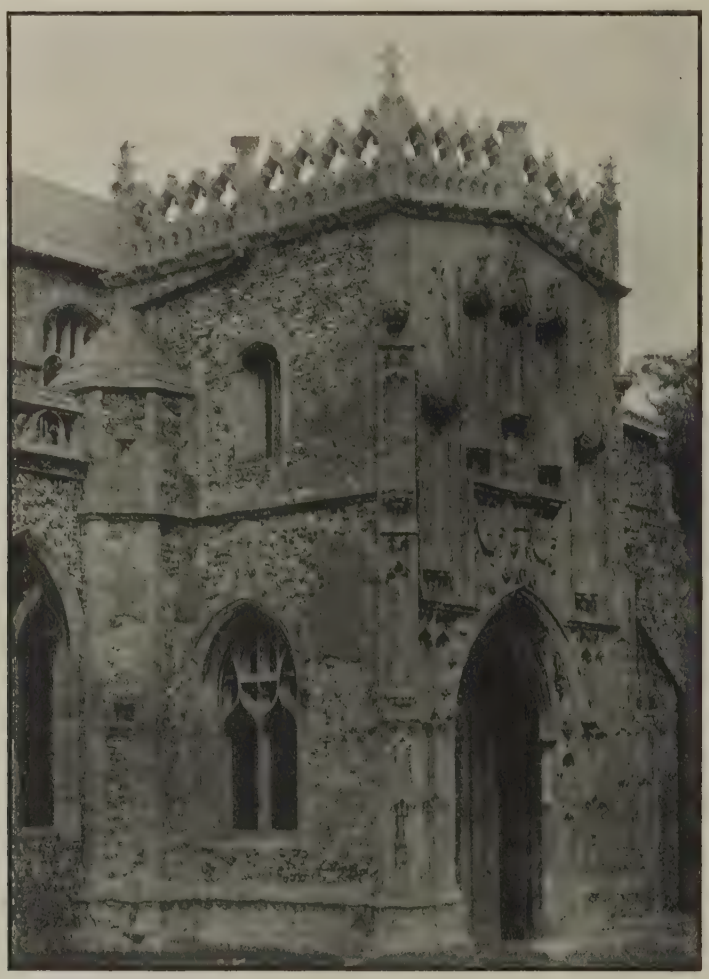
terminamus, nos Galilaeam nominamus."[1] In England examples are rare in the Greater churches. The Galilee of Durham is really a Lady chapel; at Glastonbury the Galilee linked up the Lady chapel, originally a detached building, to the nave. The only genuine examples on a large scale are the Galilees of Lincoln and of Ely,

[1] See Dr Fowler's note in the *Rites of Durham*, 229.



E. S. Welbourn, Lincolnshire

which belong to the early years of the thirteenth century; the latter seems to have replaced an earlier Norman Galilee, which, James Essex writes in 1757, was as correspondingly broad as the present one, and therefore may have been deep. The Galilee at Lincoln is at the south-west corner of the central transept. In the Cistercian



G. G. B. Woolpit, Suffolk

churches here, as abroad, the Galilee, where it existed, was little more than a penthouse over the three western doorways of the nave and aisles; remains survive at Byland, Rievaulx, and Fountains abbeys (63).[1] At Chichester, St. Albans,

[1] See Enlart's *Gothique en Italie* for other examples of the Cistercian Galilee.

Peterborough (64), and Snettisham (649) the western porch is a Galilee in everything but name.

Among the lateral porches of the naves are some of the most magnificent examples of mediæval architecture; to the twelfth century belong the porches of Southwell (722), Malmesbury, and Selby (435); that at Sherborne has been

F. H. C. Yaxley, Suffolk: North Porch

rebuilt; to the thirteenth those of Wells (708), Salisbury, and Christchurch; those at Worcester, Tewkesbury, Canterbury, Gloucester, Beverley (728), are fine specimens of later work.

It was not as a rule till late that important porches were added to parish churches; magnificent examples, with fine flintwork, are frequent in East Anglia;

e.g., St. Nicholas, Lynn (729); the Nottingham porch of St. Mary, Bury St. Edmund's, erected by John Notyngham, grocer, in 1437; porches at Lavenham (182), Beccles, Fressingfield (727), Woolpit (724), Wilby (726), Yaxley (725), and North Walsham, Suffolk; Walpole St. Peter, Norfolk; North Curry, Somerset (731); Northleach,

F. H. C. Wilby, Suffolk

Gloucester, and the chapel of Magdalen College, Oxford (732). That at Cirencester is three stories high, and was guildhall as well as porch: at Edington, Wiltshire, also the porch is three stories high; the only entrance to the uppermost chamber is from the leads. The north porch at Ottery has three stories. In East Anglia the porch was often vaulted; *e.g.*, Sall, Norfolk.

Porches of two stories are common; the upper story is often styled, though inaccurately, the *parvise*.[1] In pre-Reformation times there seems to have been

[1] "Parvise" (*parvisus*, *parvisum*, etc.) = *paradisus*, a park or enclosed space: hence the enclosure in which a church stands. The word in the early Middle Ages was chiefly applied to the public space west

F. H. C. Fressingfield, Suffolk

of the church, corresponding to the basilican *atrium*. At this spot, as at York and Ripon, where the chapter held their courts at the west door, much legal business was done: the word survives in the Parvis Notre-Dame at Paris and Reims. In process of time, much of the business done in the parvise was transferred under cover to a porch; and this may be one reason for the great size of some of the later porches in big business centres such as the East Anglian towns and villages, and in Somerset. In Germany and Belgium, the word *Paradies*, *Paradys* is often applied to a lateral porch, as at Strassburg and Bruges

no uniform use of this chamber. At Sall, Norfolk, the chamber above the south porch was a Lady chapel; a piscina occurs in the chamber at Fotheringhay, shewing that it was used as a chapel. In the porch-chamber of Southwell minster there are a fireplace, chimney, and cupboards (722); here, as at Bredon, Worcester; St. Edmund's, Salisbury; Ingham, Norfolk; Grantham (south porch), and elsewhere, it may have been the chamber of the sacristan, whose duty it was to sleep in the church in readiness to ring the bells, and for other purposes. In later days, *e.g.*, Chelmsford, Essex, and St. Mary's, Warwick, the porch-chamber contained the church library, and the fireplace sometimes found may be intended for a fire to be lit in order to preserve the books from damp. It was common in pre-Reformation days to deposit legal documents in the church, that they might be protected by the sanctity attaching to their surroundings; and for this purpose the chests and aumbries which still remain in some porch-chambers may have been designed. At Hawkhurst, Kent, the porch-chamber has always gone by the name of the treasury; at Great Malvern it was long a repository for wills; at Bodmin the porch is three stories high; the upper chamber was used as a muniment room, and the lower for meetings of the Corporation. At Weston-in-Gordano, Somerset, is a wooden gallery in the porch over the inner doorway for the choir or half-

C. G. Beverley Minster: North Porch

shewing again the transference of the term from the open area to a special building. In England the word *parvise* has been employed by antiquaries as a quasi-technical term for the upper chamber of a porch; a term which, like a "vulne" window, has a high and holy sound with a minimum of sense.—A. H. T.

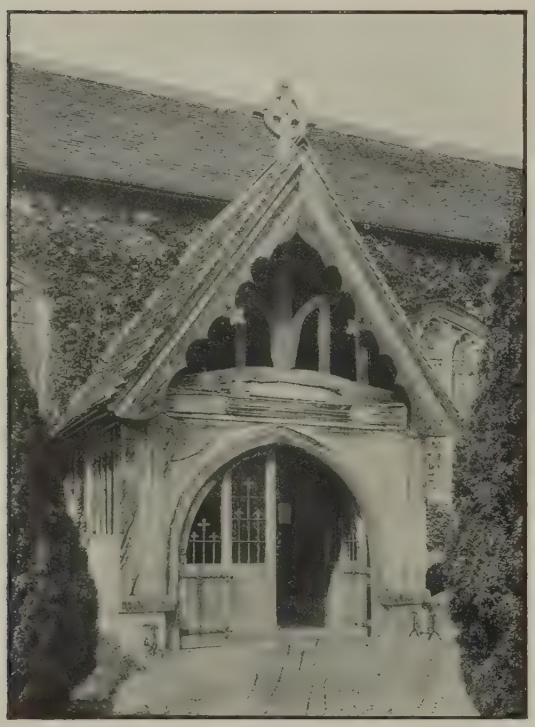
choir on Palm Sunday: there are other examples in the district. At Grantham in the spacious north porch there are two staircases, which may have been provided for pilgrims to visit relics of St. Wulfran and other saints in the chamber above.[1] Not seldom the chamber has a window opening into the church, *e.g.*, in the north porch of Grantham; this would be suitable for the exposition of relics to pilgrims below;[2] it would also be convenient on Palm Sunday, when half the choir headed the return procession to the church, while the other half occupied a fixed or temporary platform over the doorway.[3] The Minstrels' Gallery in the naves of Exeter and Winchester (94), and the Abbot's Pew or Gallery in that of Westminster, were probably designed for this purpose. That the use was not confined to cathedrals is shewn by an item in the churchwardens' accounts of St. Mary-at-Hill, London, 1524, "for the frame over the north door of the church which is for the prophets on Palm Sunday." After the Reformation the porch-chamber was very generally turned into a church library or a school. In *Twelfth Night* Maria speaks of "a pedant that keeps a school i' the church." In 1592 John Gines, schoolmaster of St. Sepulchre, London, directed that his body be buried in the "lower end of the church, at the stayre foote that goeth up to my school"; and at Colyton, Devon, it was ordered in 1660 "that Edward Clarke have notice that hee shall departe from keepinge of schole from the chamber over the church porch." As has been pointed out above (p. 108), among other functions assigned to chantry priests was that of keeping school. Schools kept in aisles

H. C. Lynn: St. Nicholas

[1] See *Archæological Journal*, lxvi. 404. [2] *Cf.* the use of St. Chad's chamber in Lichfield cathedral.

[3] The York use was that "when the procession has come to the gate of the city or the western doorway of the church, the cantor is to begin, R. *Collegerunt pontifices.* Then when the procession has entered, the choristers on high above the doorway of the church are to sing the verse *Gloria, laus.*" See the writer's *Westminster Abbey*, 53.

or chantry chapels of churches were very common, *e.g.*, part of the south aisle at Tilney All Saints, Norfolk, one of the transepts at Bossall (Yorks., N.R.), the chantry chapel south of the chancel at Farthinghoe (Northants) were long used as schools. At Howden the grammar school is still held in the chapel above a vaulted undercroft at the south-west corner of the church. The use therefore of chapel, aisle, or porch-chamber as school was much older than the Reformation; all that the Reformation did was to let the chantry schools continue in the old way as well as they could, although it confiscated the stipends of the chantry schoolmasters.



F. B. Shoreham, Kent

Exceptionally, the tower was placed next to the last western bay, or the last but one, of the nave; its ground story provided a dignified porch to the nave and was usually vaulted; *e.g.*, All Saints, Maidstone. In timber districts, such as the Weald of Kent and Essex, where wooden spires are common, wooden porches also are frequently found; *e.g.*, Shoreham, Kent (730), and Llanspyddyd, near Brecon.

Sometimes an additional porch is built in front of the older one, as in Hereford cathedral and St. Mary Redcliffe, Bristol.

In the English parish churches, as has been said above, the porch had many and important functions, partly of an ecclesiastical, partly of a secular character. In the Early Christian Church, no unbaptized person might enter a church, and the baptistery erected for the celebration of the rite was isolated from the church; for "baptism is the door or gate to the other sacraments, and no one can participate in or be the subject of the others who has not first been baptized." So in the mediæval Church of England the Sacrament of baptism was always begun in the porch. The directions of the York and Sarum Manuals are, "First the child shall be carried *to the doors* of the church." Then after certain ceremonies the infant was initiated into the Church with the words, "Ingredere in templum Dei ut habeas vitam eternam et vivas in secula seculorum. Amen." Only after this was the child taken into the church to be baptized in the font.[1] The doorway where the

[1] See the writer's *Fonts and Font Covers*, 25 and 88.

christening ceremony commenced went by the name of "the christening door" at Northampton, where in 1527 William Webster left his body "to be buried in ye churchyarde of Sainte peter *before ye crystynynge dore.*" As for marriage, the binding part of the ceremony took place in the porch, not in the church; the phrase,

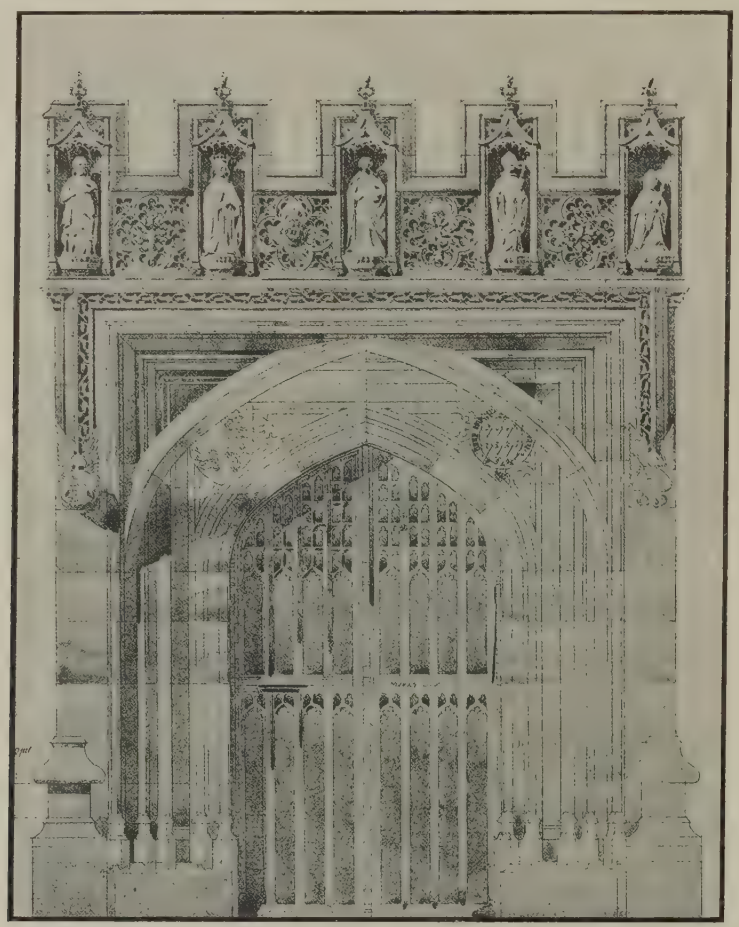
A. F. North Curry, Somerset

"taking a wife *at the church door*," being an accurate description of it. Chaucer's wife of Bath—

> "She was a worthy woman all her live,
> Husbands at church dore had she five."

First the banns were published on three successive Sundays, the parties standing at the church door. Then on the wedding day the priest, standing at the church door, asked the man, "Hast thou will to have this woman to thy wedded wife?"

R. "Yes, sir." "May thou well find at thy best to love her and hold thee to her, and to no other to thy life's end." *R.* "Yes, sir." "Then take her by the hand and say after me, I, N., take thee, M., in form of Holy Church to my wedded wife, forsaking all other, holding me wholly to thee, in sickness and in health, in riches and in poverty, in weal and in woe, till death us do part, and thereto I plight thee my



J. M. L. Magdalen College, Oxford: Chapel Doorway

troth." After the woman had made similar response, the man gave the ring to the priest, who, having blessed it and sprinkled it with holy water, returned it to him to put on. Then at last, after some prayers, the wedding party entered the church and went up to the altar, where the remaining part of the ceremony took place. In 1299 Edward I. was married to Margaret, daughter of Philip III. of France, at the church

door of Canterbury cathedral, toward the cloister, near the door of St. Thomas Martyr. In 1625 Charles I. was married by proxy to Henrietta Maria, sister of Louis XIII. of France, at the church door of the cathedral of Notre Dame, Paris. In 1277 Robert Fitz-Roger undertook to endow Hawisia, his daughter-in-law, at the church door on her wedding day with lands amounting to the value of £100 per annum. In two fifteenth-century wills the testator gives his body to be buried in the porch of Holy Trinity, Hull. In one the language is English; in the other Latin fails when he comes to translate "wedding porch"; "corpus meum ad sepeliendum infra *wedding porch*." The porch, also, was very often the scene of penance. In 1593 it was ordered that "Agnes Ditton shall upon Sunday, being the eighth day of February next coming, clothed in a white sheet down to the ground, and having a white wand in her hand, resort unto the *parish church porch* of Fen Ditton, and there shall stand from the second peal to morning prayers until the reading of the second lesson, beseeching the people that pass into the church to pray to God for her and to forgive her," which thing she did on three several Sundays, as the churchwardens did duly attest.[1] The porch also seems to have carried with it some right of sanctuary. There is an entry in the corporation records of Norwich for 1662: "Thomas Corbald, who had a loathsome disease, have with his wife and two children lain in the porch of St. Peter's, Permountergate, above one year; it is now ordered by the Court that he be put into some place in the Pesthouses at the pleasure of the Court, until the Lazar houses be repaired." And at Diss, Norfolk, in 1687, the churchwardens paid "To the Wench Eleanor, that lay in the Church Porch, at several times, 7s. 0d." In early days burial in any part of a church was forbidden; St. Etheldreda of Ely, who died of the plague in 669, St. Chad of Lichfield, St. Swithun of Winchester, were among the first to be buried in the porch. To the last burials continued to be made in the porch. John Crouch, who was Mayor of Rye in 1495, directed his "body to be buried in the church burying place, in the south porch of the parish church of Rye." In 1521 the churchwardens of Banwell, Somerset, received from "Robert Cabzu, for laying of his wife in the porch, 3s. 4d." It is not uncommon to find a sepulchral slab forming the threshold of a church door, especially the south door or the entrance to the porch. It may denote the humility of the deceased, with a possible reference to the text, "I had rather be a doorkeeper in the house of my God than to dwell in the tents of ungodliness." Some of these slabs may have been moved to replace a worn or broken threshold stone; but the instances in which they occur are numerous, and it is probable that many are *in situ*. To give greater sanctity as well as publicity to a bargain or agreement, it was often stipulated that it should be executed in the

[1] Orders of this kind are extremely common. I have notes of a large number of cases from the Consistory court-book at Bristol, where the custom was that you did penance at your own church porch on one Sunday or two Sundays, and at the High Cross at Bristol on the third, where absolution was given. Sometimes the second Sunday's penance had to be done at another church.—A. H. T.

church porch. In 1592 the vicar of Sonning, Berks., left a legacy to each of his daughters, "to be paid in the church porch." In 1462 John Lea covenanted, on annual payment to him of 6s. 8d. in the south porch of Market Harborough, to keep the chimes "in good, sweet, solemn, and perfect time of musick." In the diocese of St. Asaph, the interest of £5 was left in 1712 for the purchase of flannel for four old men and women, who were to draw lots or throw dice for it in the church porch. In the south porch of Eye church, Suffolk, is a stone ledge, which may be a dole table, or a counter on which payments of money might be laid. When a man was to be outlawed, it was in a church porch that the first processes were performed by the sheriff. To this day the church door or the inside of the porch is the proper and legal place at which to exhibit lists of voters, elections to parish councils, gun licences, etc.[1]

[1] On the porch see T. F. Thistleton Dyer's *Church Lore Gleanings*, and *Notes and Queries*, *passim*.

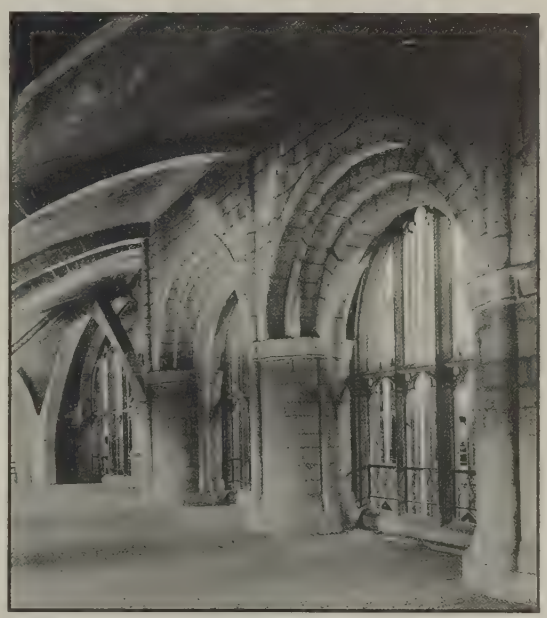
W. H. W. Temple Church, London

CHAPTER XI

THE TRIFORIUM AND BAY DESIGN

IN the interior of a Norman or Gothic church of the first rank, *e.g.*, the nave of Wells (754), three stories are to be seen on either side; at the bottom the ground story, containing the pier-arcade, at the top the clerestory, containing the upper windows, and, intermediate between the two, what is called the triforium.[1]

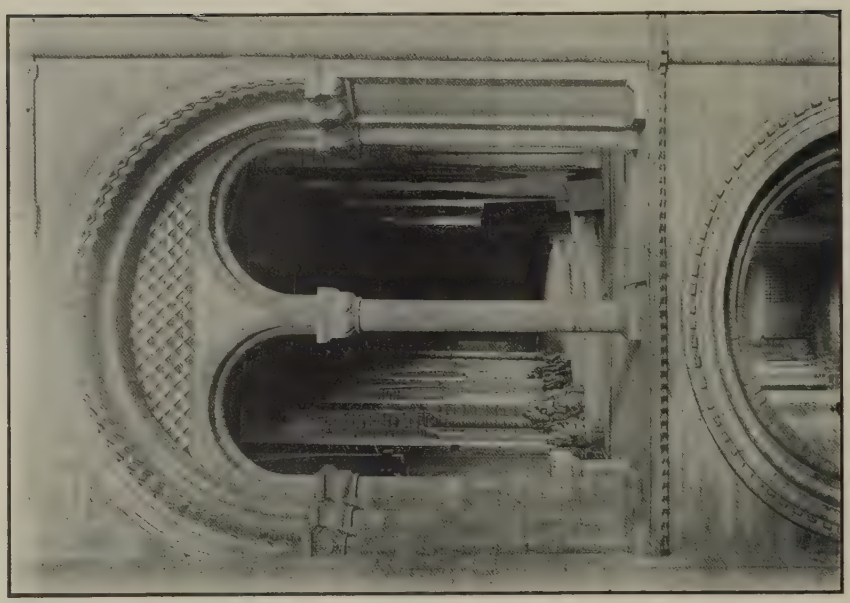
Only those churches which are aisled, and whose aisles are vaulted, have a triforium chamber. Binham priory church and Thorney abbey (738) church have lost their aisles; and have a triforium arcade, but not a triforium chamber. The monastic churches of Tutbury, Dunstable, and Thorney have all lost their clerestories; and what was formerly a triforium arcade is now glazed. The naves of the cathedrals of Rochester and Carlisle and of the abbey churches of Waltham[2] (276) and



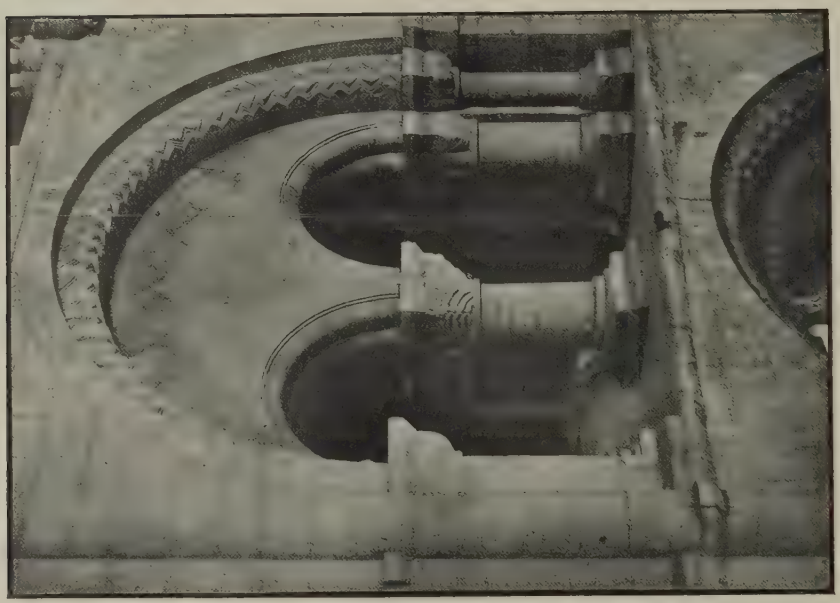
W. T. A. Gloucester: Triforium Chamber

[1] It should be borne in mind that the term *triforium* is used in two senses; properly it refers to the chamber above the aisle vault and below the aisle roof; but is also used of the arcade, where there is one, in front of the triforium chamber. In France the term *tribune* is often applied to the chamber; and *triforium* to the arcade; thus Comte Robert de Lasteyrie says that the Romanesque transepts in France are usually without aisles and therefore have usually "ni tribune, ni triforium."—*Architecture romane*, 334. In the illustration from Peterborough, above the aisle is seen a triforium chamber, on the left side of which is the triforium arcade looking into the nave (736). In the illustration from Lincoln retro-choir the triforium arcade is seen in front; the triforium chamber is at the back (585). The interior of the triforium chamber at Pershore is shewn on p. 400.

[2] Originally, however, the aisles of Waltham had vaults; they were removed in the fourteenth century; a similar fate seems to have befallen the aisles of Shrewsbury abbey.

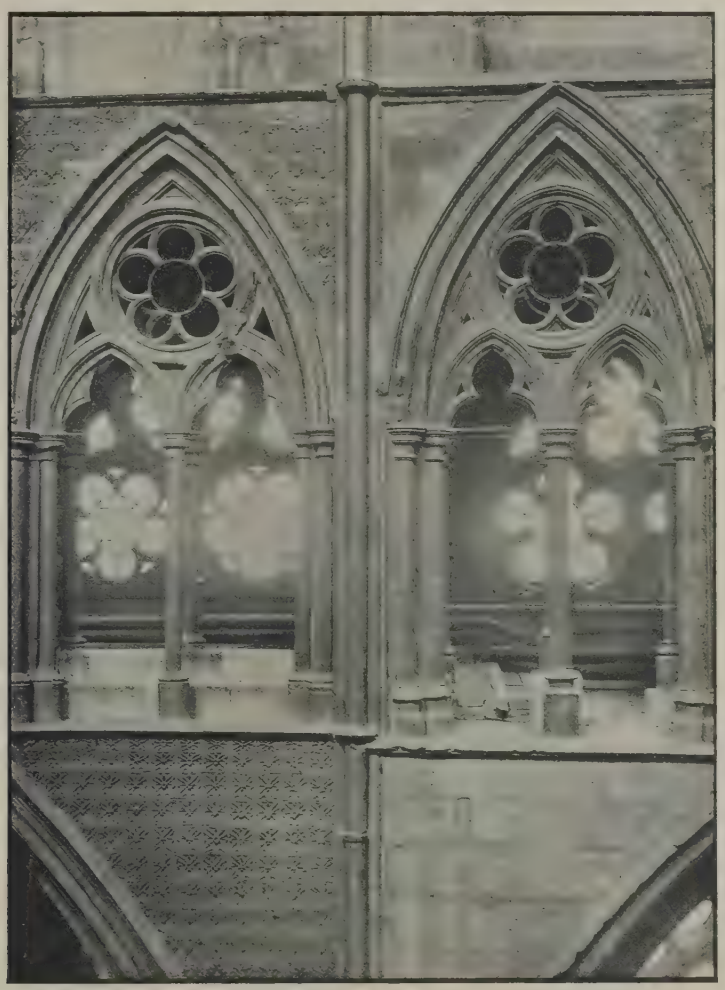


J. F. H. Peterborough



F. H. C. Selby : East Nave

Shrewsbury have aisles, but they are not vaulted; each of them retains a triforium arcade; none of them has a triforium chamber. Parish churches with vaulted aisles and a triforium chamber are very few; the most important example is St. Mary



D. W. Westminster Nave: Triforium

Redcliffe, Bristol, which both in its plan and in its internal disposition is designed quite in cathedral fashion (948). The almost complete absence of the triforium makes a marked distinction between the interior of a parochial church on the one hand, and a cathedral, collegiate, or monastic church on the other: the latter

F. S. Malmesbury Abbey, Wiltshire

F. H. C. Thorney Abbey, Cambridgeshire

has normally an internal elevation of three stories; the former of two,[1] *e.g.*, Lavenham (182).

Where there is a triforium chamber, it runs along the whole length of the aisles of nave, transepts, and chancel, providing a vast amount of accommodation which might be utilised as a gallery.[2] It is clear, however, that it was utilised very seldom. For many of these chambers have no windows at the back, *e.g.*, Ripon (782), or, as in Lincoln retro-choir (784) and Christchurch (739),[3] windows too small to be of any use except to enable workmen to see their way when engaged on repairs. Others are walled off in front; *e.g.*, Chester choir (757) and Beverley (762). They are usually approached by a winding staircase (*vice*) in the thickness of the wall, too narrow for congregational purposes or for a vested priest. And very few have a floor; except where one has been added in modern times; none of the triforium chambers of Lincoln have floors, except one inserted recently to support the organ.[4] At Gloucester, however, the triforium chambers of the chancel and transepts were certainly used ritualistically, for they still retain the slab of the eastern altar, and piscinas in the walls testify to the former existence of others; moreover the chambers formerly opened into the chancel and transept by large single arches, are lighted by windows at the back, are floored, and are approached by broad, convenient staircases (735). Similar are the arrangements at Westminster, where sculptured corbels in the easternmost bay look as if a chapel had been intended in the triforium chamber; here also there are broad staircases, floors, openings to the nave, and windows; apparently Henry III. designed that there should be a spacious upper

F. B. Christchurch Nave

[1] There is, of course, a still more salient difference; viz., that a parochial nave has almost always an open timber roof; whereas a cathedral, collegiate, or monastic nave commonly has its roof masked by a stone vault.

[2] The triforium chambers of Lincoln minster have a total length of over 1,000 ft.

[3] The buttresses, aisle windows, and clerestory are thirteenth-century work.

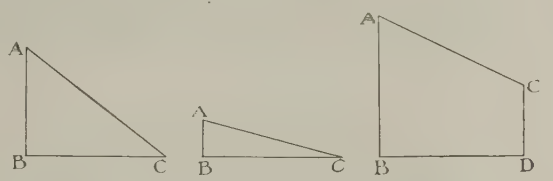
[4] As may be seen in the illustration, the only path is on planking laid on the longitudinal ridge of the aisle vault (585).

F. R. P. S. New Shoreham : North Arcade

F. R. P. S. New Shoreham : South Arcade

church with due complement of altars; but his intention was never carried out.[1] Again, in the earlier Norman churches of the first rank the transepts were usually provided with eastern apses; these apses, as may be plainly seen at Southwell (58), Christchurch (848), and Tewkesbury (59), were often two stories high, each forming a chapel. In periapsidal churches the radiating apses of the chancel might also have upper chapels, as at Gloucester. Evidently, to reach this ring of five or more upper chapels, a corridor would be wanted, and that corridor was provided by the triforium chamber.

As has been said, the triforium chamber is the space between the aisle vault and the aisle roof.[2] Normally, it is in section a right-angled triangle. If, however, it has windows at the back, the section will be as in the diagram.[3] The height of the chamber is conditioned partly by its breadth from nave wall to aisle wall, or in other words by the breadth of the aisle below, partly by the slope of the roof. Most Norman roofs were steep, the pitch being usually at an angle of 45°; it follows that the earlier triforium chambers were usually rather lofty on the side towards the nave, as were the early Gothic chambers also; *e.g.*, at Ripon and Lichfield (782, 785). If, however, as at Peterborough and Ely, the triforium chamber was of the section B, it tended to be loftier still[4] (573). Sometimes, even in Norman days, the pitch of the roof had already begun to be lessened; *e.g.*, at Ely (573).



Speaking generally, the history of the triforium falls into three divisions. First, there is an early and important group of triforiums of the type with windows at the back and an open arcade in front. As regards this class, it has been pointed out in Chapter IX. that it was brought into existence by the desire to obtain borrowed light from windows inserted at the back of the triforium chamber; it is a design which commences in the Abbaye-aux-hommes at Caen (385), and which is well seen at Durham (746) and in the nave (573), presbytery (574), and choir (575) of Ely. After this last design, *c.* 1330, it reappears no more.

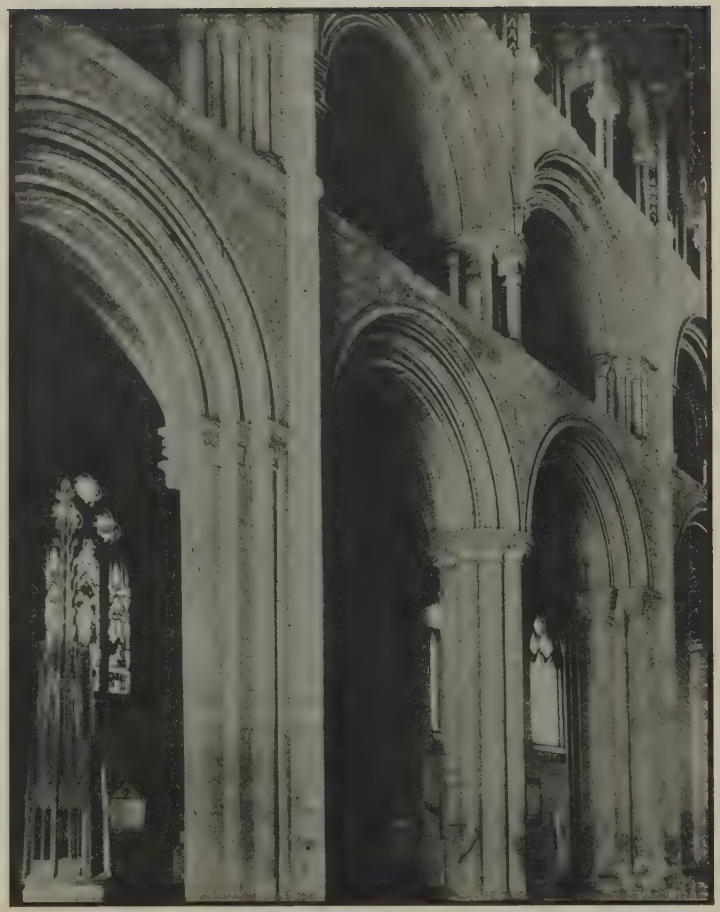
The second class consists of chambers without windows at the back, which we may distinguish as *blindstories*. These blindstories fall at once into two sub-classes; those open to the nave, and those walled off; *i.e.*, *open* and *walled* blindstories.

[1] See the writer's *Westminster Abbey*, 100, 74, 111. In the illustration (392) the unglazed windows are those of the cloister; of the three sets of glazed windows above them, the lowest are those of the aisles, the next those of the triforium chamber (737), the next those of the clerestory.

[2] In Gloucester chancel, by exception, the triforium chamber is vaulted with a *demi-berceau* (735).

[3] In each diagram AC represents the sloping roof; AB the front wall, often pierced with an arcade; BC or BD the upper surface of the vault or the floor, if the vault is floored: in the large diagram CD is the aisle wall, carried up higher to receive a window.

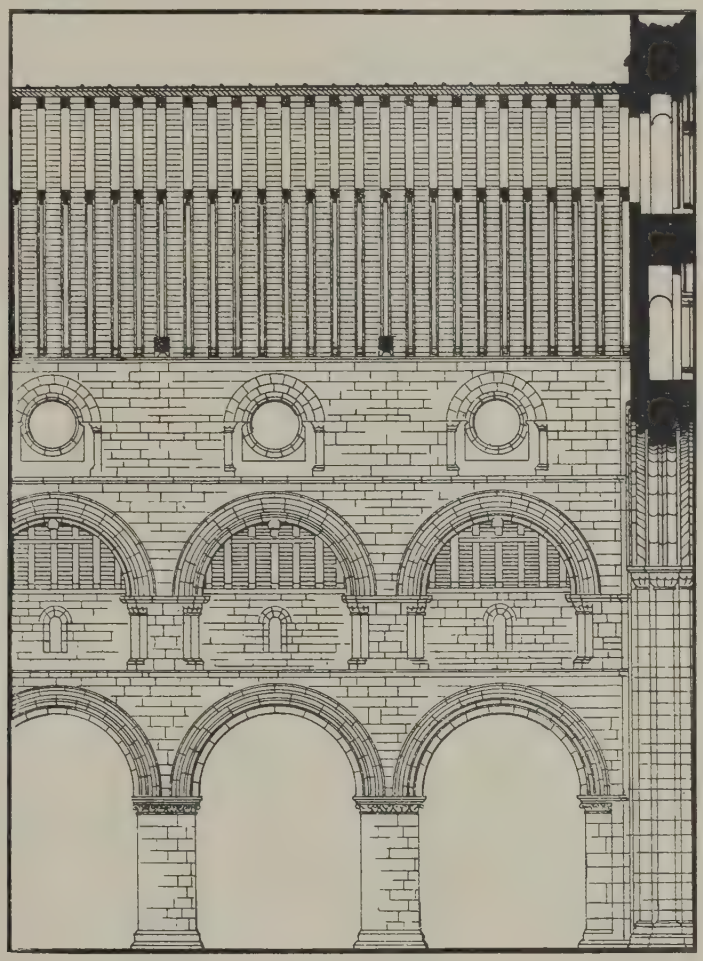
[4] Compare the section of Southwark cathedral choir (405).



F. B. Selby Nave

F. H. C. Chester St. John's

We will take first blindstories which *open* to the nave by an arch or arches. This type of design may be defended on the ground that the triforium arcade imposes less weight on the pier-arches below than a solid wall would do. It is more likely, however, that the motive of the design is purely artistic; the desire to get a band



E. C. Southwell Nave

of blackest shadow intermediate between the brightness of the clerestory and the subdued light of the nave below. It is remarkable that this most effective contrasting of light and gloom found little favour in France, except in Normandy, *e.g.*, the choir of the Abbaye-aux-hommes; elsewhere the French triforium chamber is walled off, perhaps because the builders distrusted the capacity of an open arcade

G.G. S. Hereford Cathedral: the Presbytery

to carry the vast upper weight of churches so much broader and loftier than our own. In England the open blindstory appeared here and there, but infrequently, in eleventh and twelfth century design; but in the thirteenth century it was enormously popular; yet, before the end of that century, in spite of its unequalled artistic merits, it was wholly discarded. The third type, which had been in existence from the first, side by side with the other two, from *c.* 1300 superseded both; this was the *walled* blindstory.[1]

H. E. M. Christchurch Nave

OPEN BLINDSTORIES

Both the two last classes of triforiums are blindstories to the extent that they are not lighted by windows at the back; the former, however, is open to the nave, whereas the latter is usually walled off. First, we have to deal with the *open* or *arcaded blindstory*. The design of open arcades, set off by the darkness of a blindstory at the back, gave the builders great opportunities, of which they took full advantage. Five main types of open arcade[2] may be distinguished.

First, in many Norman triforiums with windows at the back, *e.g.*, the Abbaye-aux-hommes, Caen (385), Norwich, and the nave of Old St. Paul's, each bay was pierced with a single arch; this was so also in a few triforiums which had no windows, *e.g.*, in the nave of Carlisle. In the last half of the twelfth century the single arch persisted here and there; *e.g.*, in the north side of the nave of Selby, where it is semicircular (742);

[1] By this is meant a blindstory, the arcade of which from the first had a wall behind it; it is not intended to include those in which the arcades have been walled up in modern times, *e.g.*, York nave (767).

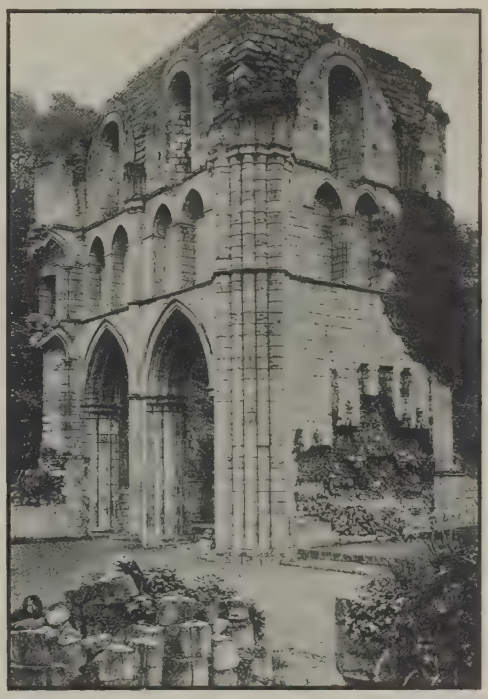
[2] The following classification is applicable to the arcades of *windowed triforiums* as well as of open blindstories.

J. F. Durham Nave : from South-east

at New Shoreham on the south side, and in the eastern bays on the north side, where it is trefoiled (740).

To a single semicircular arch, however, there was the grave objection that it looked inadequate to support the superincumbent weight of clerestory, vault, and roof; both constructionally and artistically it was greatly improved by inserting stiffening arches inside it. As a rule only two of these minor arches were employed. Of this class many examples survive. To the eleventh century belong the massive

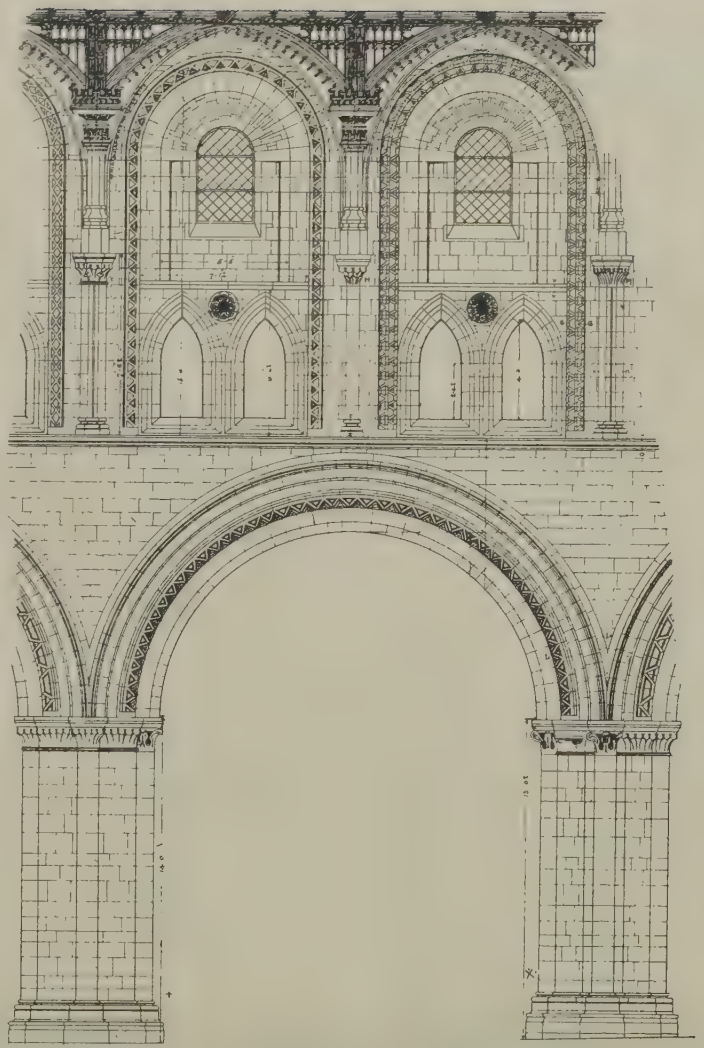
F. B. Glastonbury Abbey, Somerset



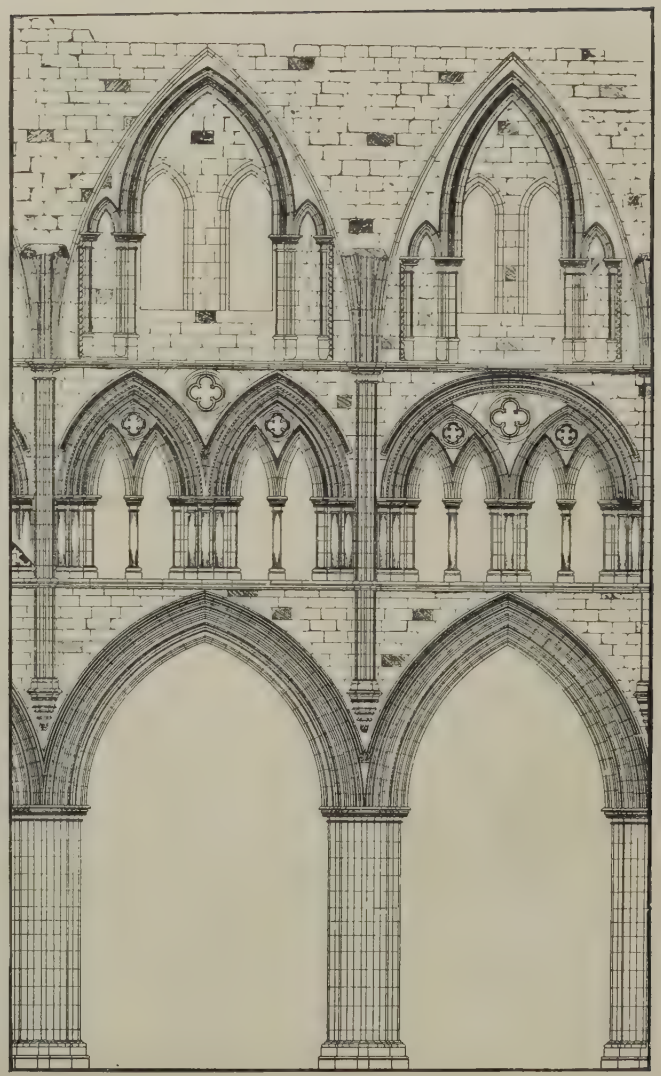
H. E. I. Roche Abbey, Yorkshire

arcades of Winchester transept (61), Hereford choir (744),[1] and Durham (746), followed early in the twelfth century by those of Selby (742), Christchurch (745), Ely nave (573), Peterborough (778), and Romsey (771); in the last the tympanum is replaced by a shaft in a fashion more curious than pleasing. At Ripon (782) by allowing the central arch to occupy only the central half of the bay instead of the whole of it, it has been found possible to reduce the height of the triforium arcade by one-half, thus obtaining very nearly the excellent proportions which were to be designed in the thirteenth

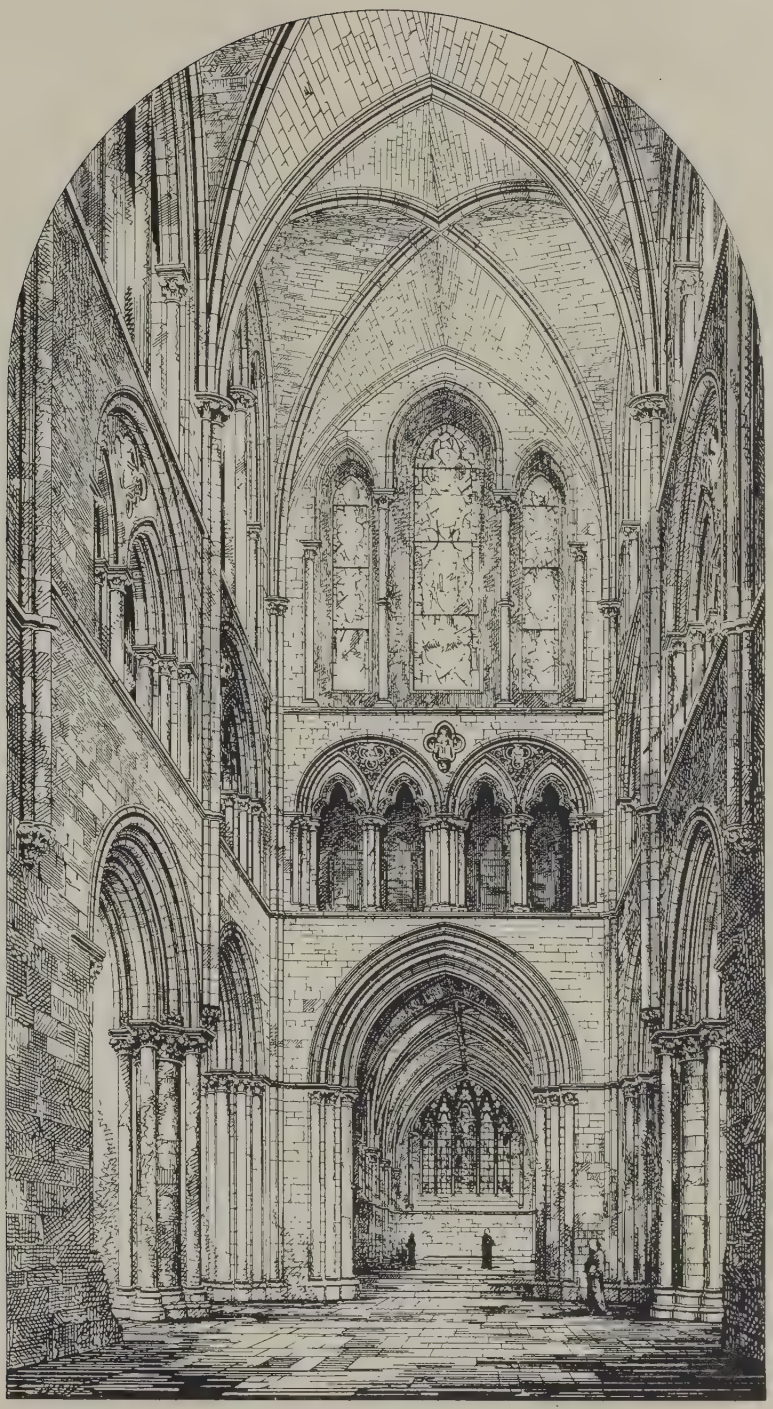
[1] In the drawing of the Norman presbytery of Hereford cathedral the altar platform is shewn too far back; the High altar probably stood in the second bay from the east.



B. N. St. David's Cathedral : Nave



F. F. G. Rievaulx : Western Bays of Choir



W. S. W. Chichester Retro-choir and Lady Chapel

century at Beverley (762) and Westminster (737); this was a great change in bay design, as may be seen by comparing Ely nave (573) with Ripon. The Romanesque

J. F. H. Ely Octagon and Choir

scale of dimensions was still retained here and there; *e.g.*, in Chichester retro-choir (749) and Ely presbytery (574) and choir (575); but the Ripon proportions, in which

the ground story roughly equals one-half, the triforium one-sixth, and the clerestory one-third of the total height, became usual in English and still more in French Gothic.

In a few instances the single containing arch was divided not into two but into three or four minor arches; *e.g.*, St. Bartholomew, Smithfield, Tutbury, and Malmesbury (738).

A more ambitious design appears in Gothic, in which all the three sets of arches were combined; at the top being a semicircular containing arch extending the whole breadth of the bay; beneath it two minor contained arches, themselves again split

S. S. Lincoln Retro-choir

into smaller arches; this is seen in Whitby,[1] York transept, the eastern bay of Rievaulx choir (748), the north side of Bridlington,[2] and Salisbury,[3] in the last of which the containing arch is unpleasantly obtuse (752). Such arcades, so far as they retain the semicircular arch, are survivals of Romanesque design and out of place in a Gothic interior. A more serious objection was that the superposition of so many arches made the triforium arcade very lofty; and this loftiness, again characteristic of much Romanesque design, was particularly objectionable, because

[1] Illustrated in *Gothic Architecture in England*, 114.

[2] *Ibid.*, 125.

[3] In the triforium and clerestory of Salisbury are seen flying buttresses added at a later date to strengthen the tower.

F. R. P. S. Wells Nave

F. R. P. S. Salisbury Choir

it tended to curtail the height of the clerestory and the pier-arcade, and thus to diminish the amount of top light from the clerestory and side light from the aisle windows.

Second.—The obvious solution of the difficulty was to employ in each bay not one tall arch, subdivided or not, but a pair of low arches set side by side; this at once made it possible to effect a great reduction in the height of the triforium. This design appears in its simplest form in the eleventh-century nave of Tewkesbury (42), and late in the twelfth century in the nave of St. David's (748), and in the transepts of Roche (747) and Rievaulx (13), and in the western bays on the north side of New Shoreham (740), where the triforium arcade consists merely of a pair of pointed arches, not subdivided.[1]

J. F. H. St. Denis from North-west

Sometimes more than two arches are employed; there are four low pointed arches in each bay of St. Thomas's chapel, Canterbury.[2]

Third.—It was, however, far more common to subdivide this pair of pointed arches. This design, with its consequent low triforium, appears in the nave of Gloucester early in the twelfth century (758). In the last half of that century it is seen, still with the containing arches semicircular, in Canterbury choir; henceforward the containing arches are pointed. This arrangement gave us in the thirteenth century the most lovely designs in English architecture; the triforium of Westminster (737),[3] that of Rievaulx choir (748), that of Lichfield nave (785), those of Lincoln choir and retro-choir (584), and Carlisle (280). A variant is seen in the north transept of Hereford, where each of the two arches in each bay is sub-

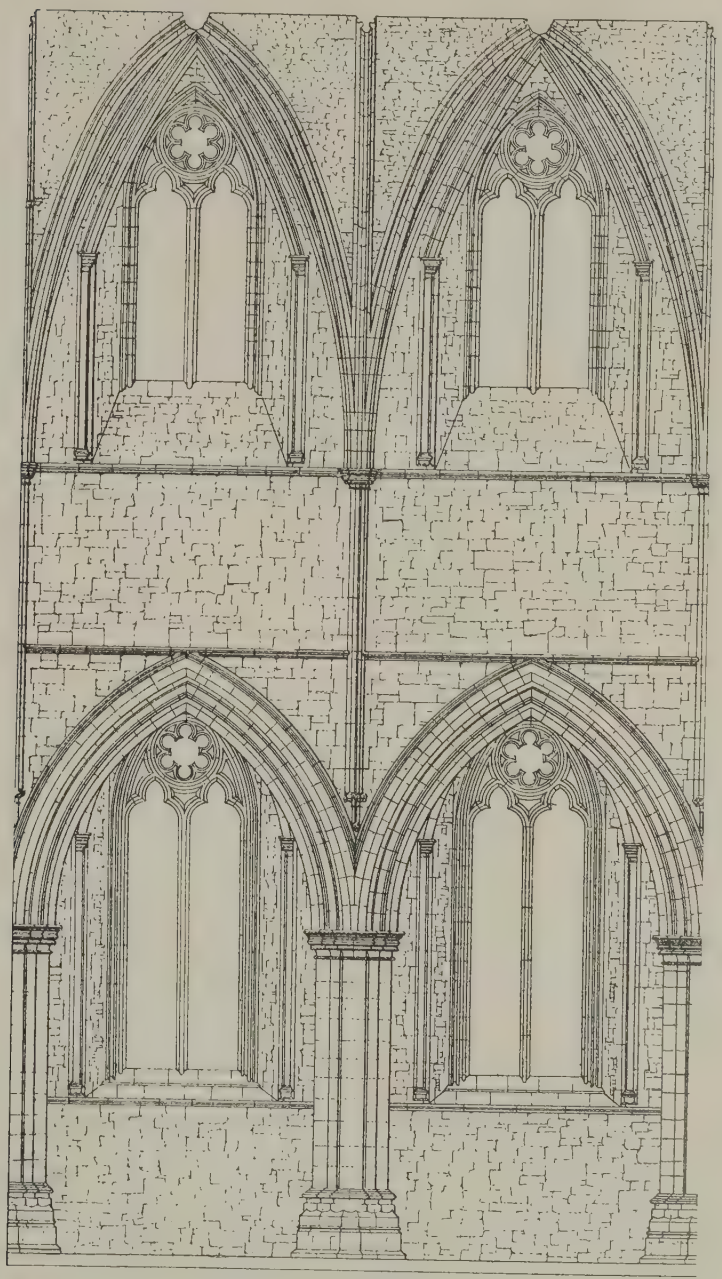
[1] Compare the nave of the Temple church, London; consecrated in 1180.

[2] Illustrated in *Gothic Architecture in England*, 107.

[3] The bay on the left is of the time of Henry III., that on the right of the time of Henry V.

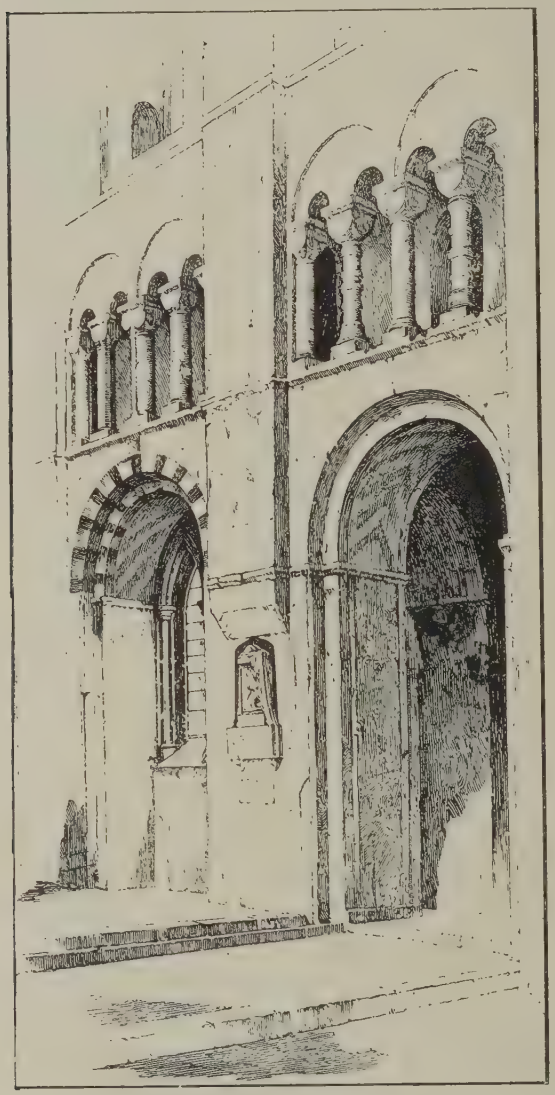
J B.

Wells Nave



E. S. Tintern Nave

divided not into two, but into three smaller arches: the same disposition was adopted in Lincoln nave owing to the unusual width of its bays (585).



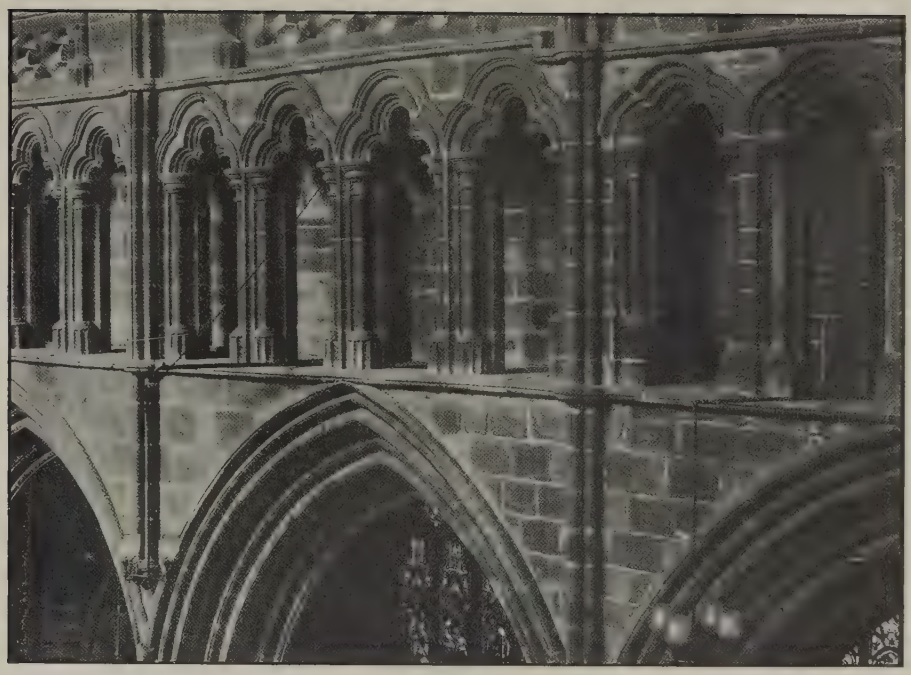
St. Albans: North Transept

Fourth.—One other type of low triforium remains to be mentioned; it is that in which no division of bays is made in the triforium arcade, but low arches run on from end to end without any break of continuity; this is seen in the Norman balustered transept of Chester cathedral (757) and in the nave of Wells cathedral (754).[1]

At this point a new and brilliant point of departure offered itself to the builders; but one which found little favour. If the external elevation of Ripon nave be examined (782), it will be seen that the aisle has a steep roof. There is no reason, however, why it should not be flattened, as at Sherborne (396). Were that done, it is obvious that the arches of the triforium of Ripon would look out into the open air; it would only be necessary to glaze them, and they would be windows. Thus the whole nave would get a new intermediate range of windows; not at the back of the triforium chamber, as in Ely nave, presbytery, and choir (573), but in front. Three times this design was actually carried out. At Ely there was not light enough on St. Etheldreda's shrine; so on two bays on each side of the presbytery the aisle roofs were flattened, and the openings of the front wall of the triforium were glazed: this was *c.* 1330.[2] At St. Cross, Winchester, also the lowering of the aisle roofs of

[1] It will be seen from the external elevation that the triforium wall is not confined to the lower portion occupied by the arcading, but extends upwards to the clerestory window; compare the section on p. 754.

[2] The back wall of these two bays still stands as shewn on p. 574, but its windows are now of course unglazed, as is shewn in the illustration in *Gothic Architecture in England*, 526.



F. H. C.

Chester Cathedral : the Choir

F. H. C.

Chester Cathedral : North Transept

the chancel threw the triforium apertures open to the sky. In the fifteenth century at Ripon, front windows were obtained in the choir triforium in the same way. But these are minor examples. In France, on the other hand, the *transparent triforium* had an enormous vogue, the first example probably occurring in the choir of Troyes cathedral, *c.* 1250;[1] followed by the nave of St. Denis (753) and the choir of Amiens.

F. S. Gloucester Nave

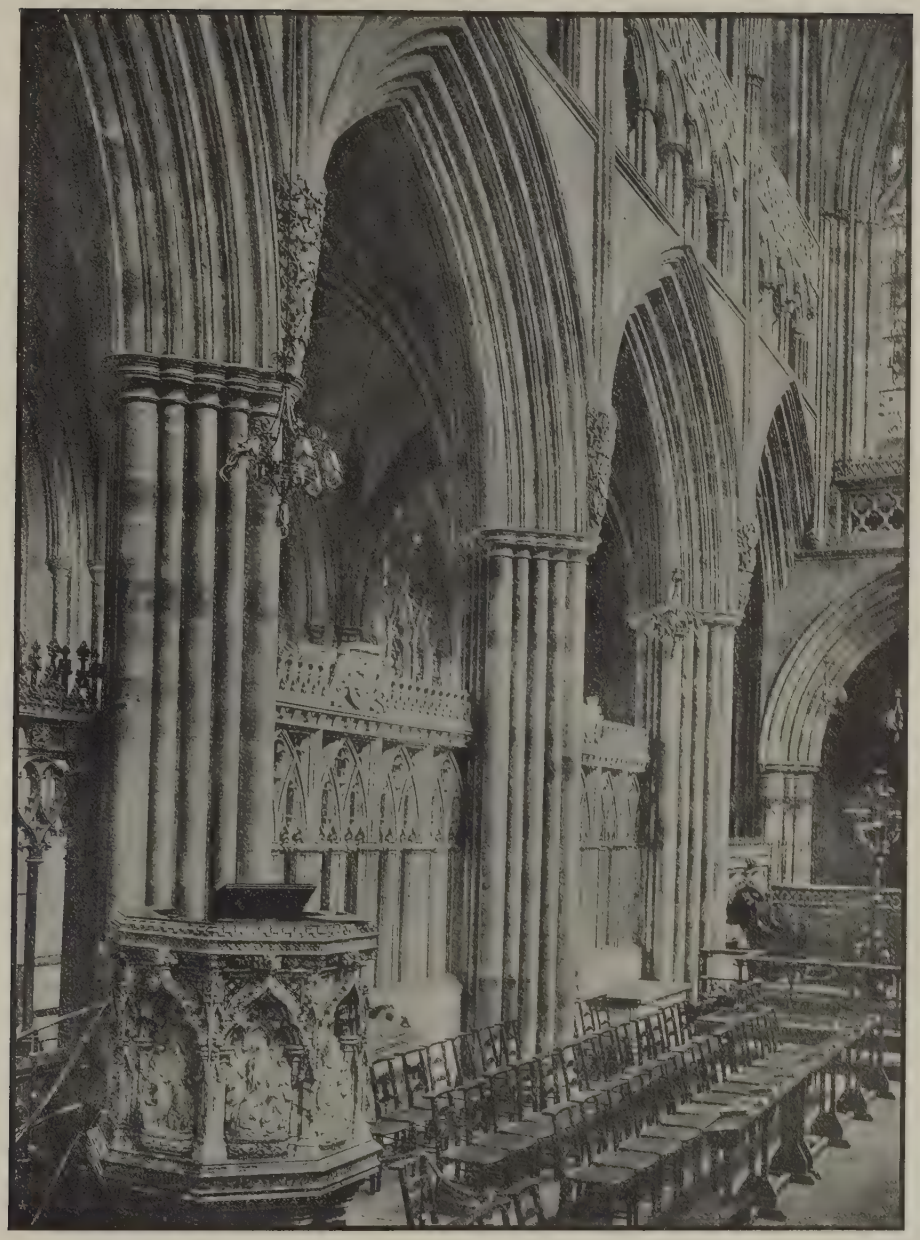
WALLED BLINDSTORIES

We turn now to the *Walled* triforium chamber. The open triforium in the form of a blindstory, *i.e.*, without windows at the back, represents perhaps the highest success obtained in any department of Gothic design; its dark depths threw out into brilliant relief the delicate detail of the molded and carved arcade, and at the same time formed a band of demarcation between the clerestory and the ground story. Nevertheless, many preferred to wall up the triforium in front. As we have seen, in Gothic architecture the triforium chamber was never used for worship, and but seldom in Romanesque. To wall it up was good construction; a solid wall was better suited to carry the upper weights of the church than an open arcade; moreover, it kept the draughts and dust[2] of the triforium chamber from the heads of the occupants of the stalls. The walled triforium gave less scope to the designer than the open one; yet it admitted of considerable diversity of treatment. In many of the Cistercian churches, both here and abroad, *e.g.*, Fountains (416), Tintern (755), Pontigny, the wall was left bare and unadorned in accordance with the injunctions against architectural extravagance. In the church of St. Pierre, Auxerre, *c.* 1600, it was left plain for the purpose of wall-painting: and this may perhaps be the explanation also of the bare walling of Malvern nave and the western bays of Gloucester nave (463).

In the eleventh-century transepts of Chester cathedral (757) and St. Albans

[1] M. Lefèvre-Pontalis, *L'architecture gothique dans la Champagne méridionale*, p. 22.

[2] Tons of fine dust have been removed of late from some of the triforium chambers; *e.g.*, Chichester and Lincoln.

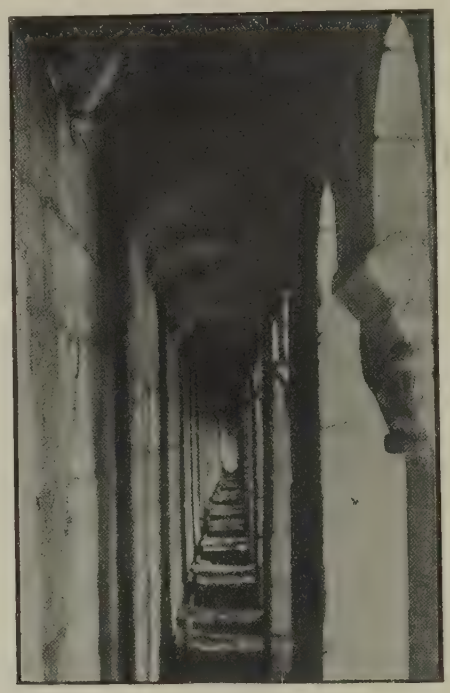


F. H. C.

Exeter Presbytery

(756), in front of the wall is a balustered arcade, which may be a survival of Anglo-Saxon design: at St. Albans, indeed, many Anglo-Saxon balusters have been reused, being provided with additional capitals and bases. In this case, between the wall and the arcade there often intervenes a passage; *e.g.*, Tewkesbury (760), St. John's, Chester (742), Exeter (759), Southwark (760), and the choir of the cathedrals of Chester (757). This passage could be utilised, as the chamber of an open triforium had been, to provide a continuous passage way; as at Tewkesbury; or openings could be cut into it from behind, as at Southwark.

E. K. P. Southwark Cathedral: Choir



W. G. B. Tewkesbury: Triforium Passage

Sometimes, however, there was no passage, and the wall was masked with a double arcade; in Worcester retro-choir there are two pointed arcades (761), in Beverley nave[1] a trefoiled in front of a pointed arcade (762); these two ranking among the most successful compositions of the Middle Ages. Before, however, the thirteenth century was spent, the builders had tired of decorative arcading, open or applied, and turned to another path of design. The fact was that for an open or closed arcade to tell, it needed to be reasonably lofty; but a lofty triforium meant a steep pitch of aisle roof. Steepness of pitch, desirable

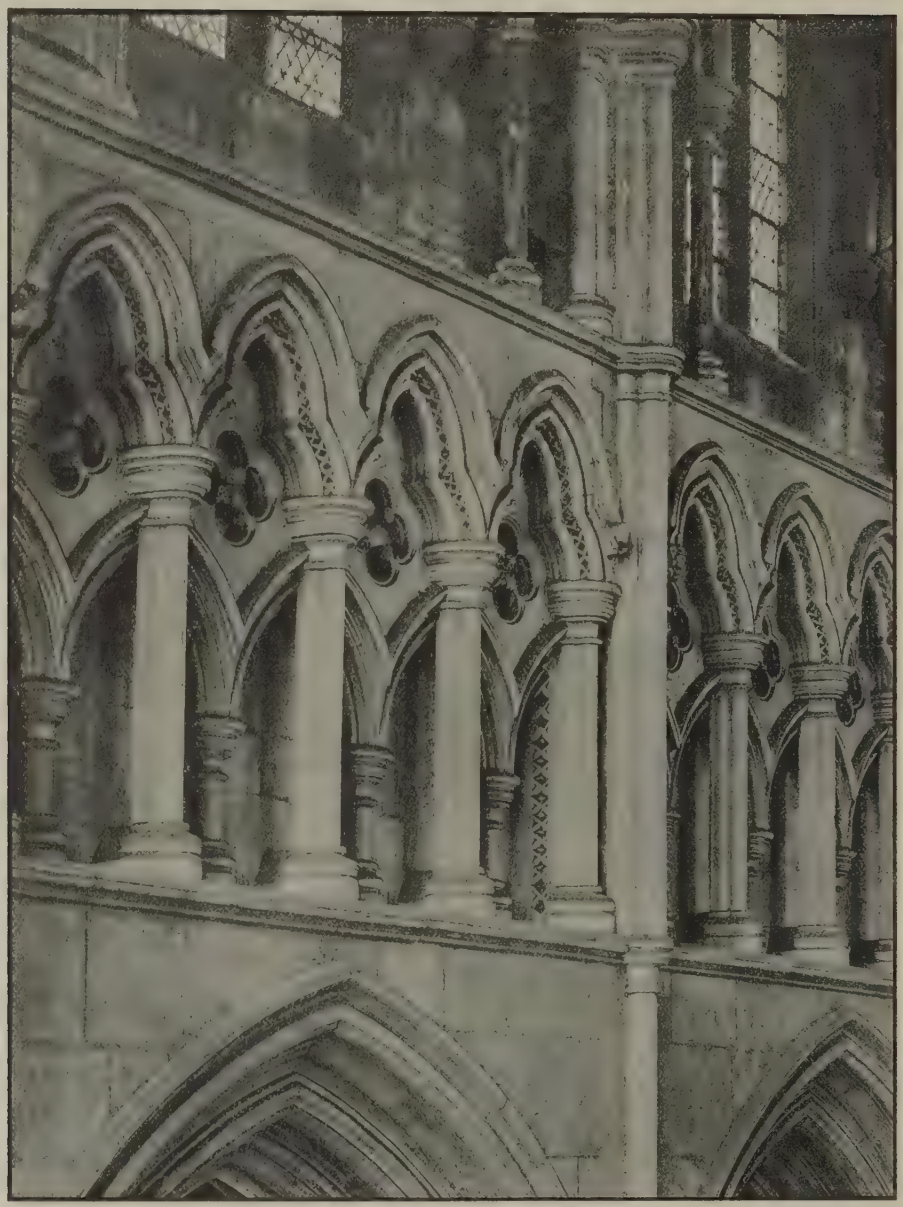
[1] The design of the triforium of the nave, which is *c.* 1330, is assimilated to that of the choir, which is a whole century earlier.

in itself æsthetically, was essential where tiles were employed as a roof covering, but with the increasing use of lead, the aisle roofs need no longer be built steep; they could be flattened as in Wells choir (763). Thus space could be saved, if desired, in the height of the nave wall; the whole church could be built lower, and its cost much reduced. There was not, however, any desire to reduce the height of the church or to lessen expense. What was chiefly desired was to bring the clerestory windows lower down and increase the height of the clerestory and the amount of top light. So the space gained by flattening the roofs was devoted to enlarging the clerestory; this is well seen in comparing the thirteenth-century nave (785) with the fourteenth-century choir of Lichfield (768), and the twelfth-century bays on the left with the fourteenth-century bays on the right of the choir of Wells (22).

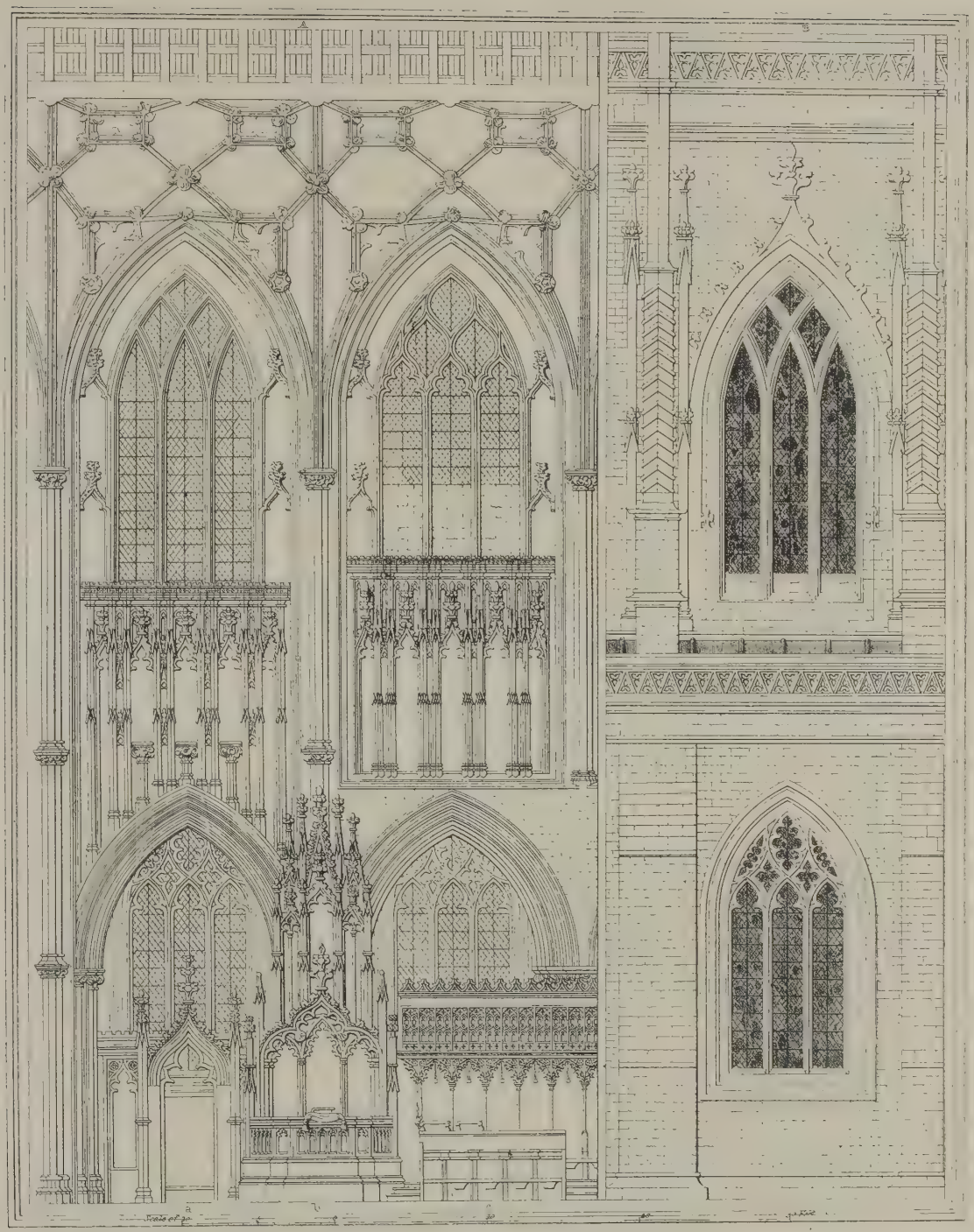
As to the artistic treatment of the front walls of the later triforium chambers, three sets of design may be distinguished. The *first* was to cover the wall all over with panelled niches; this is seen *c.* 1340 in the choir of Wells (763), and *c.* 1502 in Henry the Seventh's chapel at Westminster; in the latter the niches are filled with statues (764).

The *second* method was to ignore the very existence of a triforium chamber. One way of doing this was so to compose the design that the triforium wall should appear to be part of the clerestory; thus converting the three stories, to the eye, into two. This was an expedient which had been long in use. It is seen in the Augustinian priory church of Llanthony, and in St. David's cathedral (748), both *c.* 1180; and but little later in Christ Church, Dublin (765), and the abbeys

J. B. Worcester Retro-choir

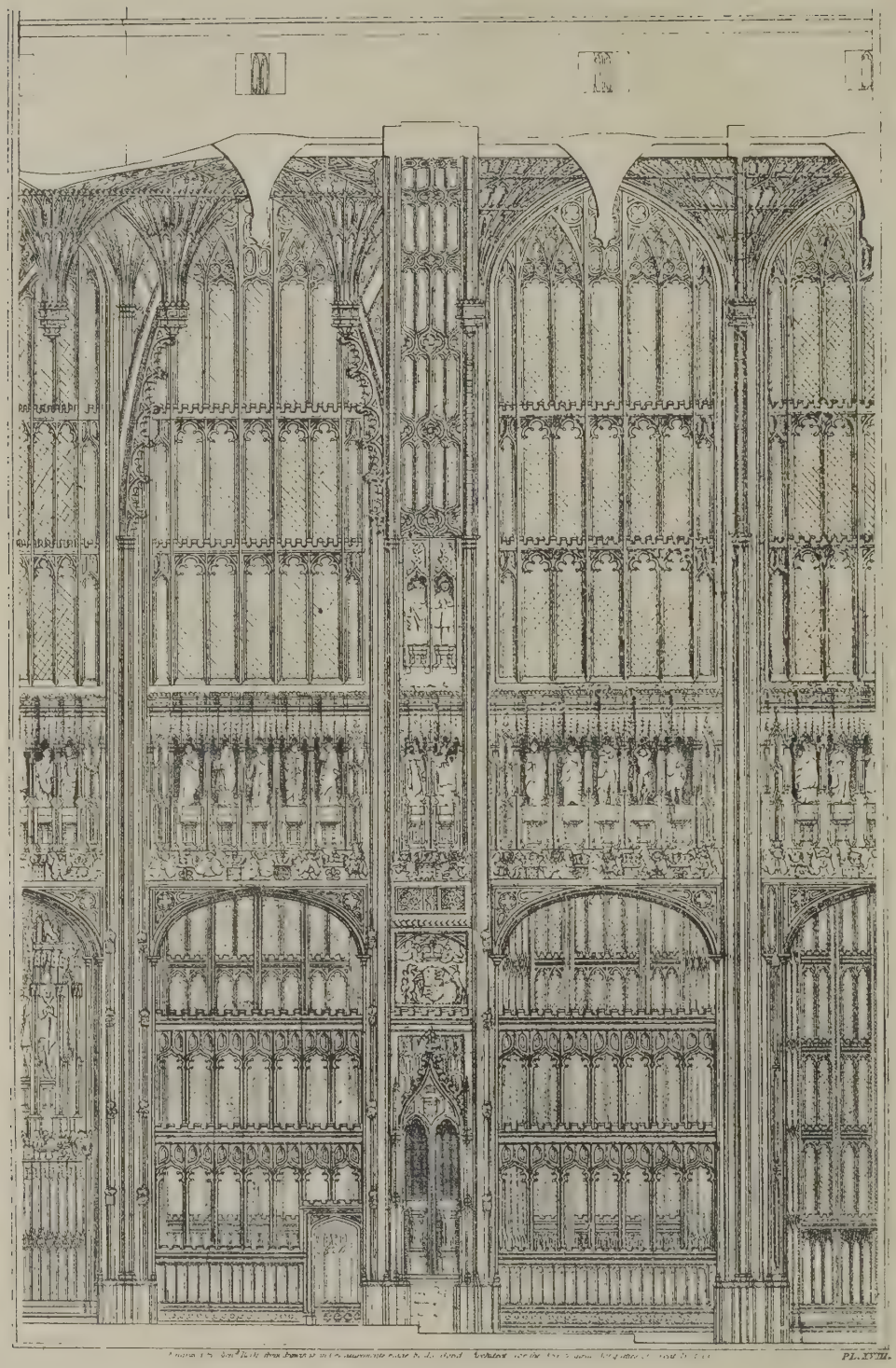


F. H. C. Beverley Minster: Nave



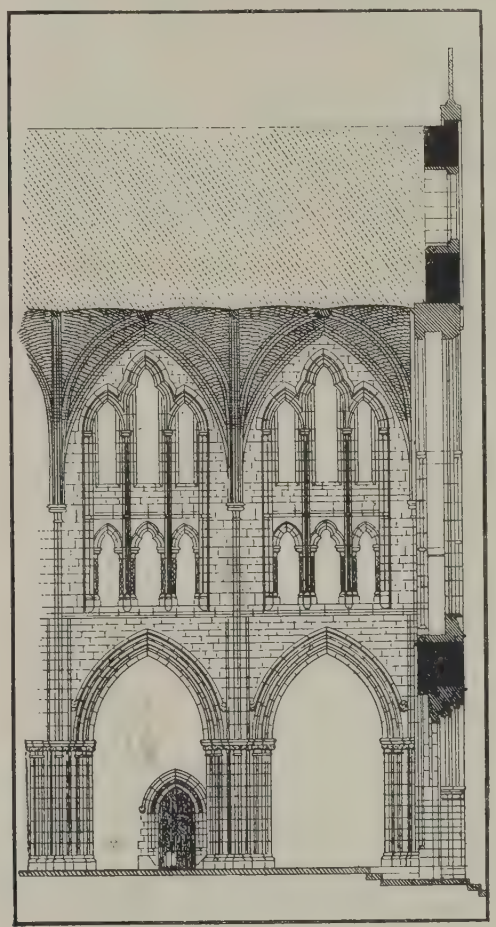
J. B.

Wells Choir

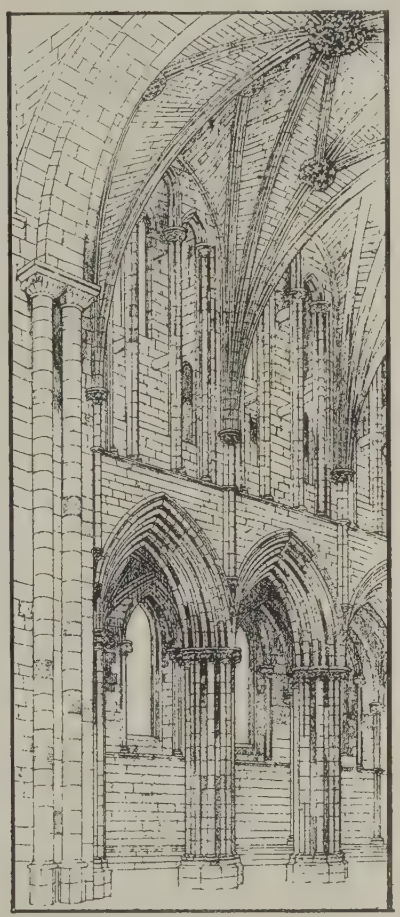


Henry the Seventh's Chapel, Westminster

of Dore (11) and Pershore (766); about 1235 it is employed in Southwell choir.[1] In the later Gothic this design is worked out in York nave (767), which was building between 1291 and 1324,[2] and, with variations, in the presbytery and



G. E. S. Christ Church, Dublin

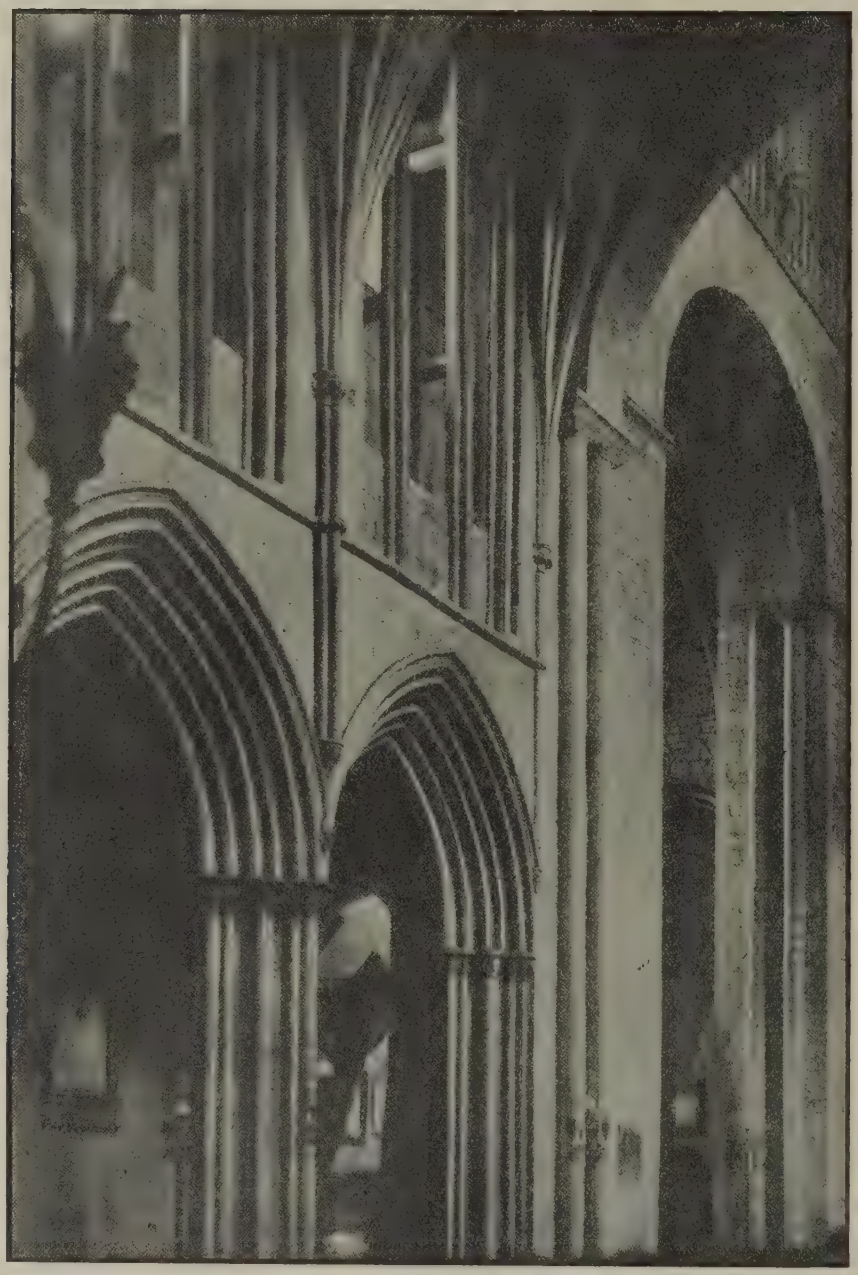


S. H. M. Pershore

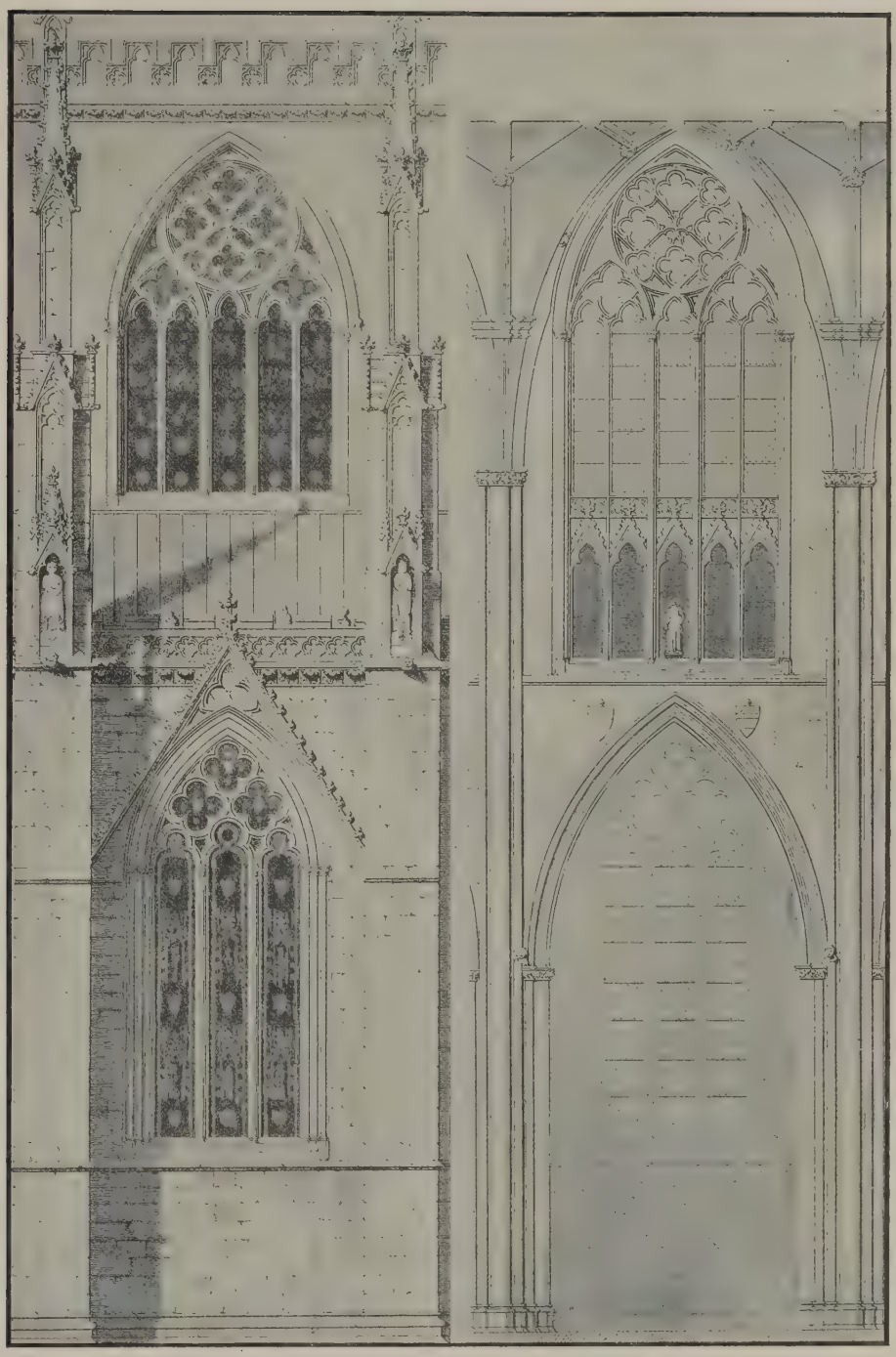
choir (1361-1400). In the nave the triforium arcade is definitely designed as an integral part of the clerestory window; the only substantial difference being

[1] There is an interesting parallel to this in the Collegiate church of Semur-en-Auxois, where the transept has an elevation of three stories, the nave one of two.

[2] The triforium of York nave was originally open; it is convenient, however, to discuss it here in connection with the walled triforium. In front of the triforium wall of the choir is a continuous passage; in the retro-choir (787) the passage is external.



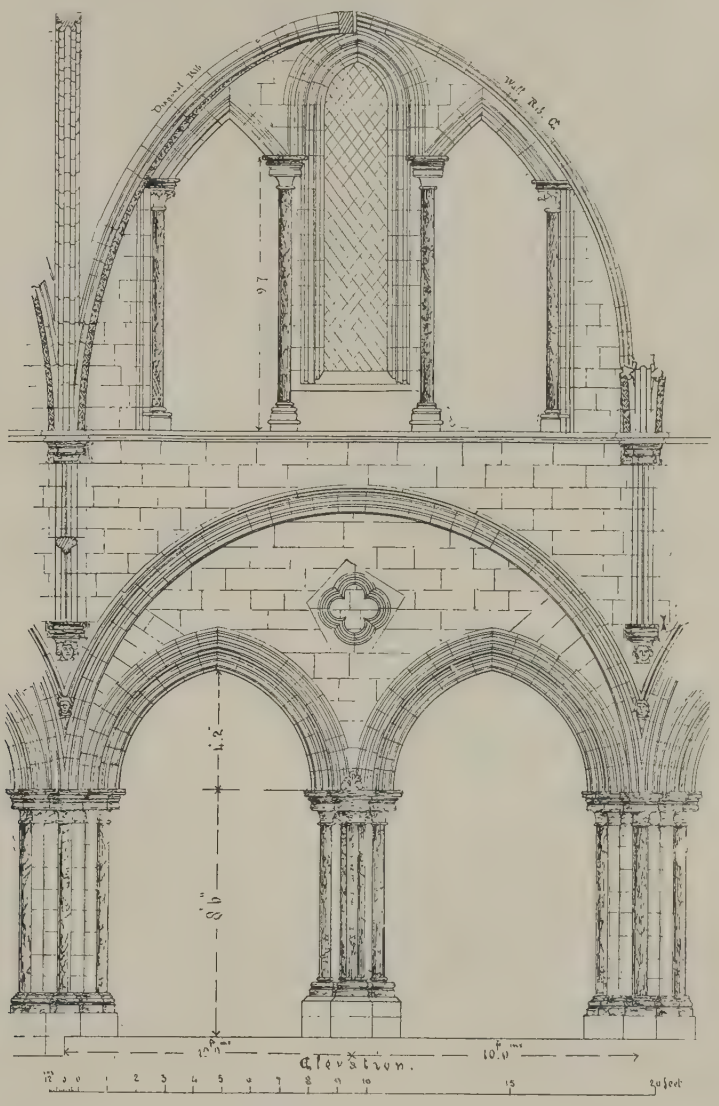
F. T. S. H. Pershore Abbey: Choir and Transept



J. B. York Nave

J. H. Lichfield Cathedral : the Presbytery

that the latter is glazed and the former not. With this may be compared the fine design of the ruined chancel of Guisborough abbey, Yorkshire.[1]

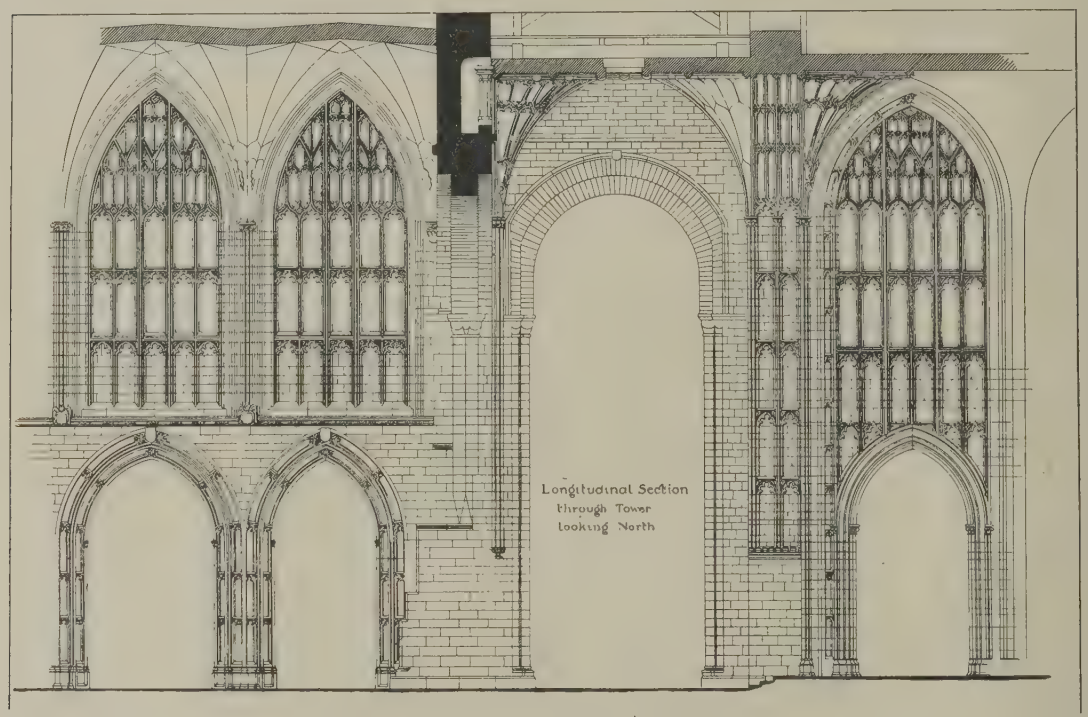


L. W. R. Boxgrove Priory, Sussex

The plunge once taken, the process of obliterating the triforium went on apace. In the remarkable interiors of St. Thomas, Portsmouth (301), and

[1] Illustrated in Rickman, p. 195.

Boxgrove priory the triforium wall is spanned by the containing arch of the coupled bays of the pier-arcade (769). In Howden and Tewkesbury choirs (43), *c.* 1330, Winchester presbytery, *c.* 1360, and Bath abbey, *c.* 1500, a string-course runs along the centre of the front wall of the triforium chamber, thus handing over the upper part of the wall to the clerestory and the lower part to the ground story. In Howden choir about two-thirds of the triforium wall formed the sill of the clerestory window; the lower third had a band of sunk quatrefoils;[1] what is really a three-storied interior has been completely transformed, so far



R. H. C. Sherborne Abbey: Nave and Chancel

as the eye can see, into one of two stories. In the fourteenth-century transept of Chester cathedral (47) the upper part of the triforium wall forms the sill of the clerestory windows; the lower part is masked by a parapet; in the nave the triforium wall is as bare of ornament as in Cistercian Dore (11). On the south side of Bridlington nave[2] the bare wall is masked by an open arcade of mullions and tracery; in the choir of Selby abbey and in Winchester presbytery by a balustrade or parapet. Similar, but less successful, is the design of

[1] See illustration in Sharpe's *Architectural Parallels*.

[2] Illustrated in *Gothic Architecture in England*, 125.

Lichfield choir (768), *c.* 1330, and Sherborne nave (770), *c.* 1480, where the glazed stage is disproportionately large; in Canterbury nave, *c.* 1374, it is disproportionately small (572). In Winchester nave, about the same date, the two stages are thoroughly mixed up, solid panelling being employed on either side of the window as well as below it (786). Then come five inferior designs, in which the panelling of the clerestory is spread not only over the triforium wall but over the spandrels of the pier-arcade, thus obliterating the distinction of ground story, triforium, and clerestory: the five occur in St. Mary Redcliffe, Bristol, Sherborne choir (770), Malvern choir, St. George's, Windsor, and King's College chapel, Cambridge; all late designs, dating from the middle of the fifteenth century onwards, and all variants of that of Gloucester choir (frontispiece).

F. S. Romsey: East Bays of Nave

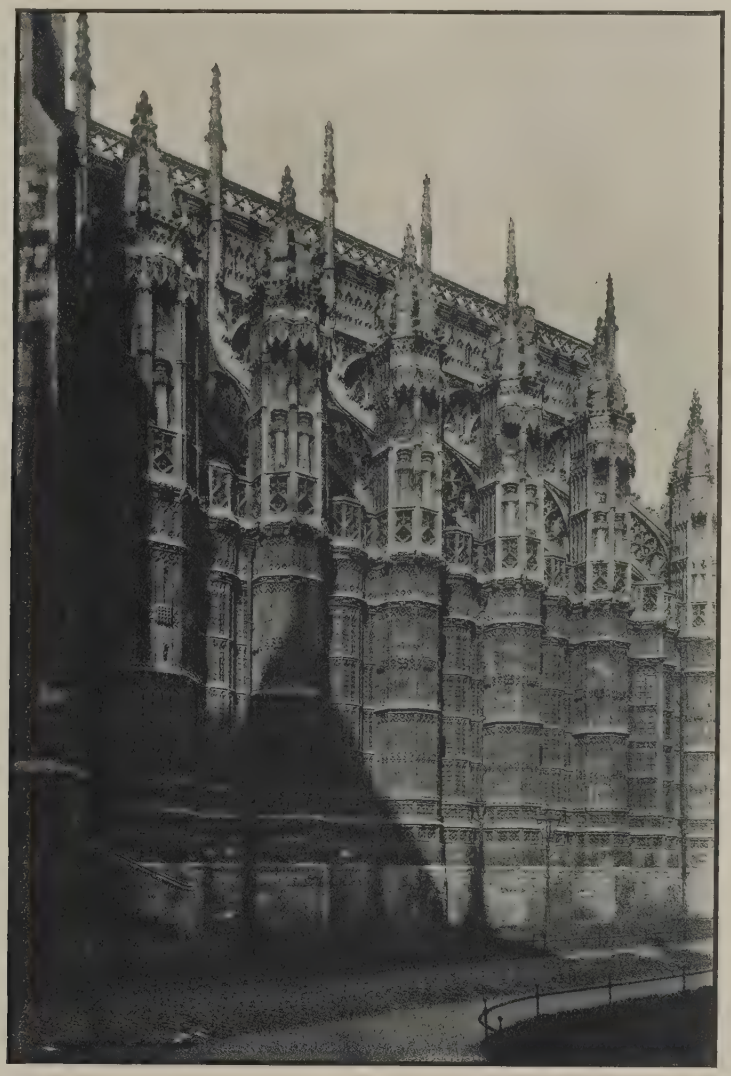
Sometimes in one way, sometimes in another, the later builders constantly found themselves discarding three-story for two-story interiors. In Gloucester they went one step further: they remodelled the choir in such a way that it should seem to be an elevation of a single story only (652). This they accomplished by giving the vaulting shaft an unbroken flow from the pavement to the spring of the arch of the clerestory window, and by emphasising the *formerets* or wall-arches of the high vault so that they should serve also as arches to the vaulting shafts. Thus the pier-arch of the ground story was made, as it were, to take its place high up in the clerestory. Gloucester was the fountain of inspiration for the later Gothic of England, and this grandiose and imposing design was copied again and again, or rather plagiarised; for no one improved on it, every alteration

being for the worse. Canterbury nave (572), Winchester nave (786), St. Mary Redcliffe, Sherborne abbey (770), Malvern choir, St. George's, Windsor, King's College chapel,

F. S. Oxford Cathedral: Choir

Cambridge, are all versions, and inferior versions, of Gloucester choir. What was wanted was a massive column flanking each bay and running uninterruptedly up to

the vault, and forming a support of a massive arch. In no case was this wall-arch anything like massive enough, nor were the columns, *i.e.*, the vaulting shafts; more-



D. W. Henry the Seventh's Chapel

over, the lines of the latter were often broken by bands or niches, as in Canterbury nave. Again, the pier-arches of the ground story, instead of being kept in the background, were always over-emphasised: the result being that two main arches are

seen, one in the ground story, the other in the clerestory. Gloucester choir, where the design was worked out first, remained to the last its most successful exponent.

Whatever form of triforium was adopted, the tendency was steadily to reduce it in dimensions and importance; the ground story and the clerestory were favoured at the expense of the triforium; the clerestory, because its windows were the most valuable source of light in the building; the ground story, because a lofty pier-arcade was necessary to get unobstructed light from lofty aisle windows. In the West of England the importance of lofty pier-arches had been recognised by the beginning of the twelfth century in the naves of Tewkesbury (43), Gloucester (758), and Pershore; where the triforium was reduced to insignificance by the towering pier-arcade below.

It was not always, however, that the exigencies of aisle-lighting controlled the design of the ground story. In a curious set of designs, commencing with an experimental bay or two at Romsey early in the twelfth century (771), and carried out with still greater completeness in Oxford cathedral (772), Dunstable, Jedburgh, and Glastonbury (747) in the latter part of the century, in order to increase the apparent height of the ground story the piers are carried up to the sill of the triforium, and support a massive arch encircling the triforium arcade; the result is that what is really an elevation of three stories with a low, squat ground story is converted into what looks like a two-story interior of much dignity.

As we have seen, the tendency of the triforium was to wane before the growing dimensions of ground story and clerestory, a tendency strengthened by the flattening of so many of the aisle roofs. Just as the chief factor in internal design had been the disposition of the open or walled triforium arcades, so externally also the flattening of the roofs led to important changes in the appearance of the building. In Norman work, as a rule, and in the earlier Gothic, the roofs both of aisle and nave were steep, and the parapets at their foot were usually plain, *e.g.*, in Ely nave (573) and presbytery (574). But the later roofs were often barely visible, *e.g.*, those of the aisles of Winchester nave (786) and presbytery, and sometimes sank out of sight altogether, as at Bridlington (775) and Bath; this was bad enough in the aisles; it was worse still in the nave. One of the crowning excellences of Norman and of Gothic design had been the sharp pitch of its roofs and gables; the lofty sky lines of its churches were in marked contrast to the humble, low-pitched temples of Greece; now all this was thrown away; no more steep-pitched Lincolns were built; the Christian church lost one of its noblest features. What was to be done? An exterior consisting, to the eye, of roofless walls—walls with a hole in the middle—was not to be tolerated. Something must be done to draw off attention from the fact that the church had no visible roof; something must be put up to arrest the heaven-aspiring gaze; and this took the form of a parapet, carved or pierced, or of a battlement equally elaborate, or of an elaborate battlement superposed on an elaborate parapet, the whole crowned by intermittent pinnacles or cupolas, crocketed, niched, and finialed; anything to

distract attention from the fact that the roof had disappeared. And so it came about that the wealth of design which in the thirteenth century had been lavished on the internal arcade of the triforium only passed away to reappear externally in battlement, parapet, pinnacle, and cupola, as in the extravagantly florid exterior of Henry the Seventh's chapel at Westminster (773).

F. B. Bridlington : South Aisle

F. H. C.

Beverley Minster from West

CHAPTER XII

THE CLERESTORY

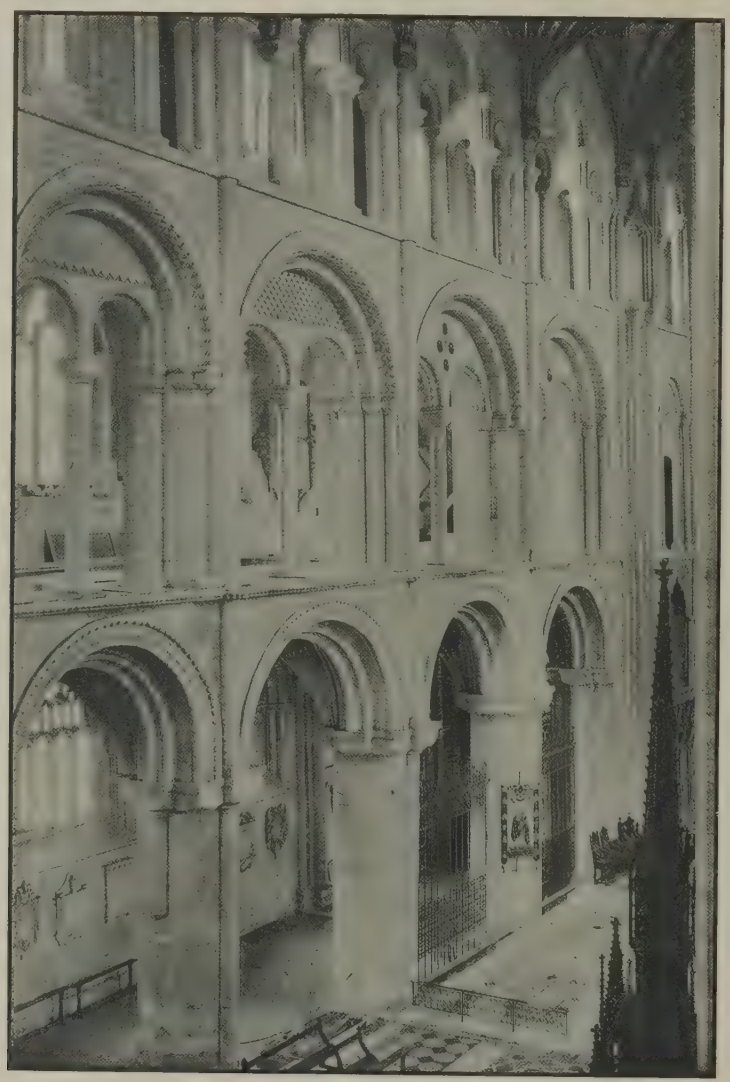
THE term "*clerestory*" or "*clearstory*" is applied both to the top story of a nave and to the range of windows which it contains. Normally, it is the third story from the floor. Exceptionally, it forms a fourth story; *e.g.*, in the eastern transept of Canterbury, where in 1175 William of Sens superposed a second

F. S. Chichester: Clerestory (South-west Tower)

clerestory on that of Prior Ernulph. In the chancel of Tynemouth priory a large late clerestory was built on the top of that of the thirteenth century,[1] but this, like the loft over the Lady chapel of Christchurch, Hants (45), seems to have lighted an upper chamber.

[1] See illustration from Brand's *History of Newcastle*, 1789, in *Archæological Journal*, lxvii. 3.

At first the clerestory was low, and had but one window in each bay, *e.g.*, in Ely (573) and Southwark cathedrals (307); coupled lancets appear at Byland *c.* 1170; at Christchurch 1195-1225 (739); in Rievaulx choir later still (748). In 1192 Lincoln



J. F. H. Peterborough: Chancel

choir is set out with triple lancets in the clerestory. The addition of tracery about the middle of the thirteenth century enables much larger windows to be introduced; *e.g.*, in Lincoln retro-choir (784) and York nave (767); at Exeter *c.* 1290,

the clerestory is almost a continuous sheet of glass. Finally, after developing laterally, the clerestory takes a sudden leap upwards ; and the towering clerestory of

F. R. P. S. Oxford Cathedral : South Transept

Gloucester choir (652), like the other Gloucester improvements, is imitated all over England—pre-eminently in Norwich cathedral, Sherborne (770) and Malvern abbeys,

Christchurch, Hants, St. Mary Redcliffe, Bristol, St. George's, Windsor, Henry the Seventh's chapel at Westminster, and Bath abbey.

The example of the cathedrals and abbeys was not lost on the parish churches. These, with the exception of a few large churches, such as St. Margaret-at-Cliffe, near Dover, and Sutton St. Mary, Lincolnshire,[1] had no clerestories in Norman days. In the thirteenth century also clerestories are exceptional, except in Herefordshire, where they abound; even when they do occur, the windows in them are but single lancets, or else small circular openings.[2] Warmington has one of the earliest clerestories with large traceried windows (780). By the fourteenth century a clerestory had become part of the ordinance of all large new built churches, such as those of mid-Lincolnshire. But even then large churches were occasionally destitute of top lighting; *e.g.*, Patrington (62) and Nantwich; in these two cases, perhaps, because the advent of the Black Death crippled the resources of the parish. In the fifteenth century it was rare to build an aisled church without a clerestory, and in hundreds of instances a new clerestory was imposed on ancient pier-arcades. Moreover, in the more advanced churches, *e.g.*, Howden nave, *c.* 1290 (781), Holbeach, *c.* 1330 (237), especially in the fifteenth-century churches in East Anglia, a pair of windows was employed in each bay of the clerestory; or rather there are two bays in both the clerestory and the roof to each one bay in the ground story: examples are illustrated from Lavenham, Suffolk (182), and St. Stephen's, Norwich (828).

F. B. Warmington, Northants

In the Greater churches there was no uniformity in the development of the clerestory. Some were satisfied to fill in the Norman or lancet windows with tracery, perhaps to facilitate glazing; *e.g.*, Wells nave (754), and Peterborough (919) and

[1] The Norman clerestory is now within the aisle roofs, and a modern clerestory is superposed.

[2] Circular windows are illustrated in the clerestories of Southwell nave (743) and Bosham (788). The lower part of the tower of Bosham is Anglo Saxon, and is represented in the Bayeux tapestry: Harold sailed to Normandy from Bosham.

Winchester transepts (568).[1] In other cases a second clerestory has been added; in others, as at Peterborough (919), small Norman windows have been taken out and

F. H. C. Howden, from North-west

large traceried windows have been inserted in their stead. The most drastic method, and the most successful, was to take down the Norman clerestory altogether, and to

[1] From many hundreds of these windows the tracery has been hacked away in modern times by "restorers." It should be added that in the plates from Mr Sharpe's *Seven Periods*, reproduced on pages 573, 574, 782, the windows are shewn in their original condition.

put up in its place a tall Gothic clerestory, as was done in the choirs of Gloucester and Norwich. In the West of England a new source of light was found. In Hereford-

E. S. Ripon Cathedral : the Choir

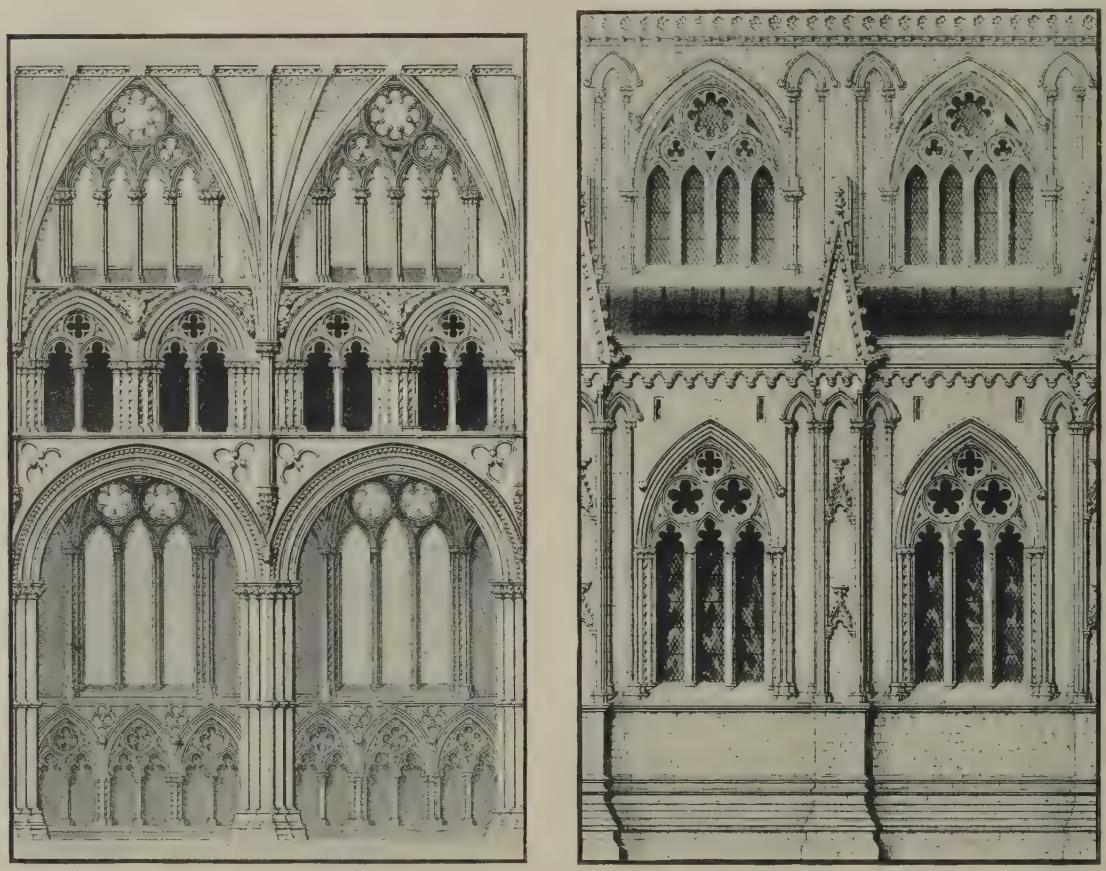
shire, even in the thirteenth century, a pair of small windows, often circular, is common over the chancel arch, overlooking a low chancel ; in later work a single large window is frequent, forming the east window of the nave ; *e.g.*, at Cirencester and Chipping Norton.

In some of the earliest Anglo-Norman churches, *e.g.*, Bernay and Jumièges in Normandy, Durham choir, and the nave of Blyth, Nottinghamshire—all set out in the eleventh century—and in the twelfth-century nave of Leominster priory, Hereford (269), the clerestory wall is solid. This is good construction, as it has to support the heavy weight of the roof and roof covering, as well as of the vault, where there is a vault. But far more often in Normandy and England the clerestory

E. S. Lincoln Minster: the Nave

wall is a hollow shell, providing a passage in the thickness of the wall running along the whole length of the clerestory, and communicating with other similar passages; it was reached by a narrow vice in the corners of the nave and transepts. What was the purpose of the clerestory passage is not certain; perhaps it was to facilitate the raising of scaffolding and the repair of the upper windows. These clerestory passages were exceedingly common in the eleventh, twelfth, and thirteenth centuries, after which they become more infrequent; they were never wholly discarded, being

found as late as Ripon nave, *c.* 1502, and Winchester presbytery, 1500-1528. In France the clerestory passage is characteristic of the Romanesque and Gothic of Normandy; but it sometimes occurs outside Normandy, *e.g.*, in the cathedrals of Quimper, Angers, Bordeaux, Bayonne, Auxerre, and Nevers.[1] The Cistercians, whose methods of building construction, so far as the idiosyncrasies of English workmen permitted, were those of Burgundy, preferred to keep the clerestory wall



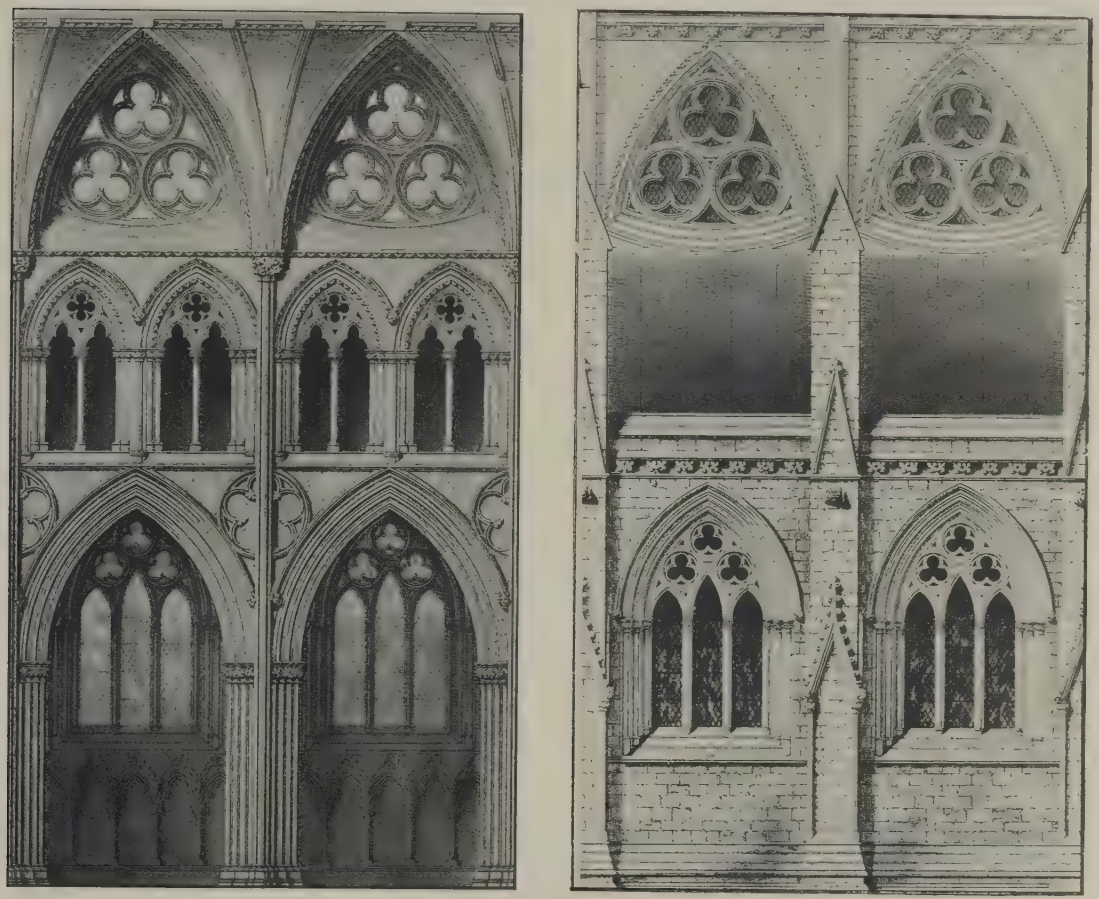
E. S. Lincoln Minster: the Retro-choir

solid; *e.g.*, at Fountains (416) and Tintern (755); but in some of their later churches adopted the English custom. From the fourteenth century the solid clerestory wall was the normal use; the example of Gloucester choir, again, was followed far and wide, *e.g.*, in the naves of Canterbury (572) and Winchester (786).[2]

[1] M. Lefèvre-Pontalis in *L'architecture gothique dans la Champagne méridionale*, p. 25.

[2] For examples of the clerestory passage see the illustrations of Winchester transept (61), Chichester

In the earliest Romanesque of Normandy, and sometimes later, *e.g.*, at Leominster (269), the clerestory window is absolutely plain. But as a rule the inner wall of the clerestory has three openings; the central one tall and corresponding to the window, and flanked by two narrow openings; this design is seen in its simplest form in the eleventh-century transept of Winchester (61) and in the nave



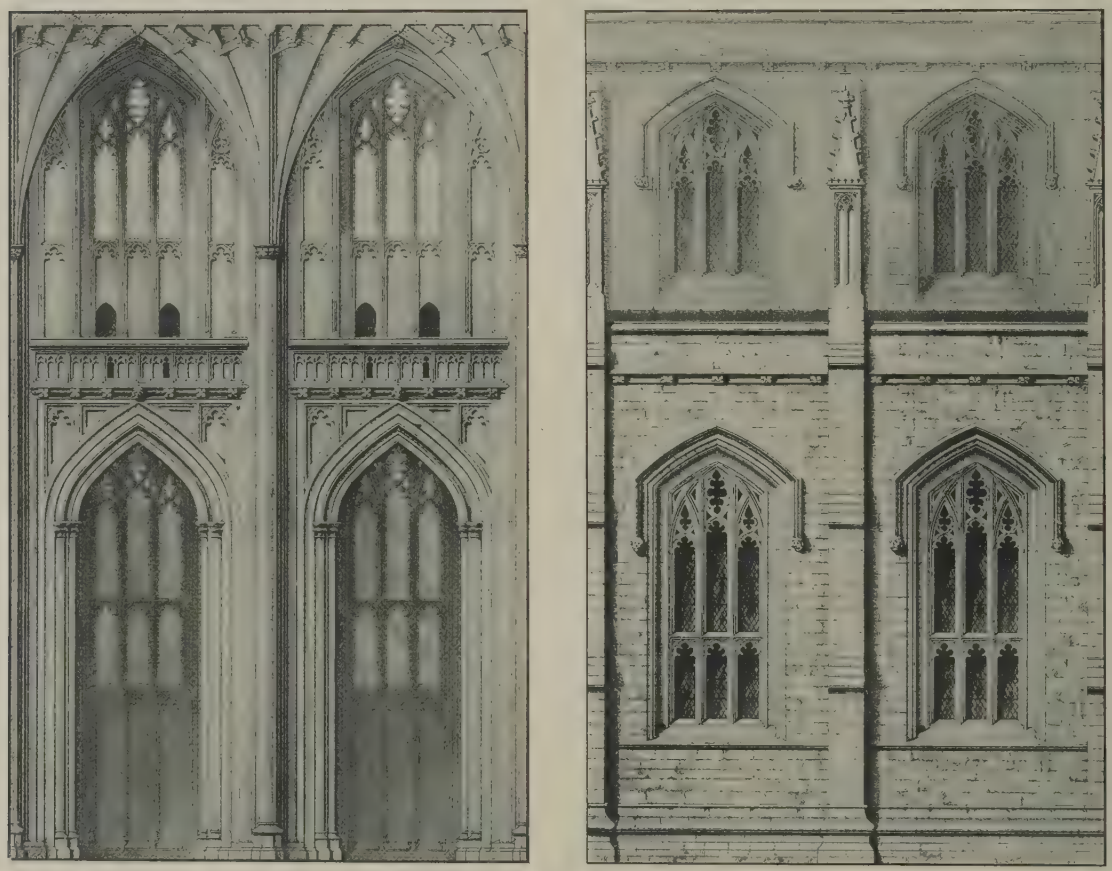
E. S. Lichfield Cathedral: the Nave

of Ely (573). More often, as in the naves of Oxford (779) and Peterborough (778) cathedrals, the stilts of the central arch have decorative angle-shafts. At Chichester,

(777), Oxford (779), Peterborough (778), Romsey (771), Lincoln choir (584), nave (585), retro-choir (585), and Salisbury choir (752). At Oxford the Norman roofing-shaft has been provided with a new capital, and on it has been built a springer for a stone vault never carried out except over the choir.

after the fire of 1186 (777), and Ripon (782) the pointing of the side arches heralds the advent of Gothic. At Romsey (771), Lincoln choir (584) and nave (585), and Salisbury (752), all three arches are pointed.

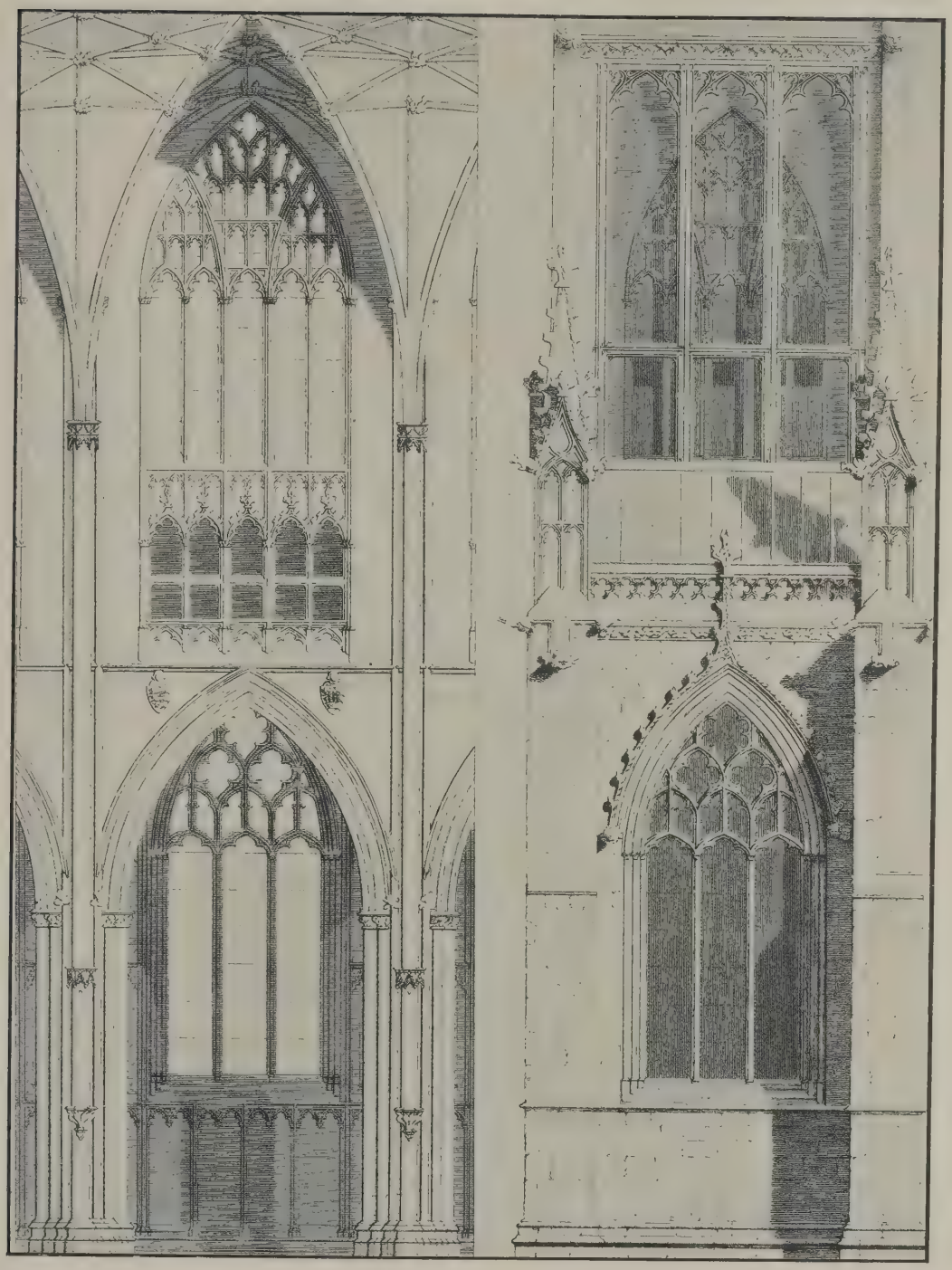
The next step was to substitute a single traceried window for three lancets, and to provide it with a traceried rear-arch; then we get such lovely combinations as the glazed traceried window and the unglazed traceried rear-arch of Lincoln



E. S. Winchester Cathedral: the Nave

retro-choir (585), Durham eastern transept,[1] and Melrose abbey. Effective, however, as juxtaposition of the glazed and unglazed tracery was from the point of view of design, it must have obstructed the light and impaired the effect of the glass-paintings; and that may be the reason why it was discarded with many other beautiful things by the stern, practical minds of the later builders. Rear-arches were often inserted

[1] Illustrated in *Gothic Architecture in England*, 514.



J. B.

York Retro-choir

in belfry windows to obtain greater strength; *e.g.*, at Sutton St. Mary (583). As a rule the best artistic effect is gained where the tracery in the rear-arch is different from that of the window; *e.g.*, in the transepts of Melrose abbey (586). Traceried patterns in flint are common on the external walls of clerestories in chalk districts; *e.g.*, Earl Stonham, Suffolk (897). In York minster the clerestory of the choir has an internal passage, but that of the retro-choir is external (787).

F. S. Bosham, Sussex

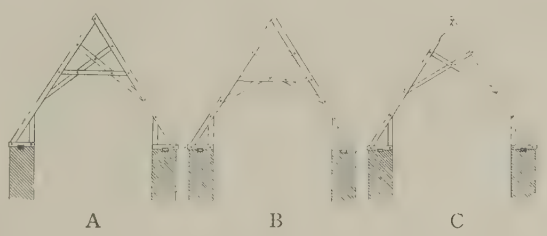
CHAPTER XIII

PROTECTION FROM RAIN

SECTION I.—ROOFS

"He that hewed timber afore out of the thick trees was known to bring it to an excellent work" (Psalm lxxiv. 6).

IT may safely be said that there is no feature of a church about which such ignorance and indifference are displayed as its open timber roof; only here and there may one find a local expert who shews some interest in it—the village carpenter—and what he knows about it is wrapped up in a technical jargon that none but himself can understand, and he himself cannot explain to others. Yet it is possible for any one, with a little trouble, to get a grip of the leading principles of mediæval carpentry as applied to roof construction. And it is worth while; for our open timber roofs are as great an achievement as our stone vaults.[1]



RAFTER ROOFS

The simplest kind of roof, and probably the earliest, is one consisting of an assemblage of coupled rafters, reinforced in various ways. Such a roof can be constructed with timbers of small scantling.[2] If the rafters are of very small

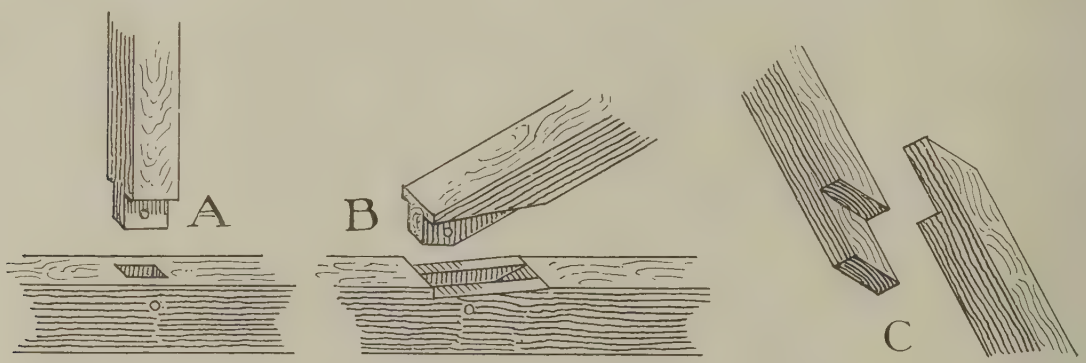
[1] "If there is one feature which above all others distinguishes the earlier builders of this country from those of all others, it is that they were skilled beyond all others in the science and practice of carpentry. . . . The churches erected by the English mediæval builders are more remarkable for the beauty and variety of their wooden roofs than are those of any other race of builders in the world."—G. E. STREET.

"In this feature of architecture England may be pronounced unrivalled; for though other countries may equal or excel her in the magnitude and external beauty of their churches, there is scarcely a church on the Continent which can boast of such timber roofs as are to be met with in almost every county of our land."—Messrs BRANDON.

"Si nous voulons voir les charpentes apparentes, il faut aller en Angleterre."—VIOLLET LE DUC.

[2] By *scantling*, carpenters mean the dimensions; *i.e.*, thickness and depth (or, height) of a beam, not the length.

scantlings, it may be necessary to fix each couple not more than 14 in. apart; if they are more substantial, they may be spaced as much as 20 in. apart, provided that the roof is of moderate span. Nowadays, in roofing a cottage, we should nail their heads to a horizontal board (a *ridge-board*); but in the mediæval roofs, the two rafters which pitch against each other were "*halved*,"[1] and pinned together with wooden pins. In Heckington porch (791) the sloping rafters JA, NA, are covered with lead, and a pin, A, is seen which fastens each couple together at the apex of the roof. Such a roof, of course, if constructed merely of couples of rafters, would spread and fall. To prevent this, it is spanned high up by a horizontal timber, BC, called a *collar beam* or *collar*, which is framed into the rafters and pinned (B). Since the two rafters are always dragging at the ends of the collar, it is in a condition of *tension*, and might, therefore, be replaced by an iron chain. But if the roof is a heavy one, *e.g.*, of thatch, or if the wind be pressing strongly against it, then the collar will be in a state of *compression*, and the chain would be useless to stop the roof from

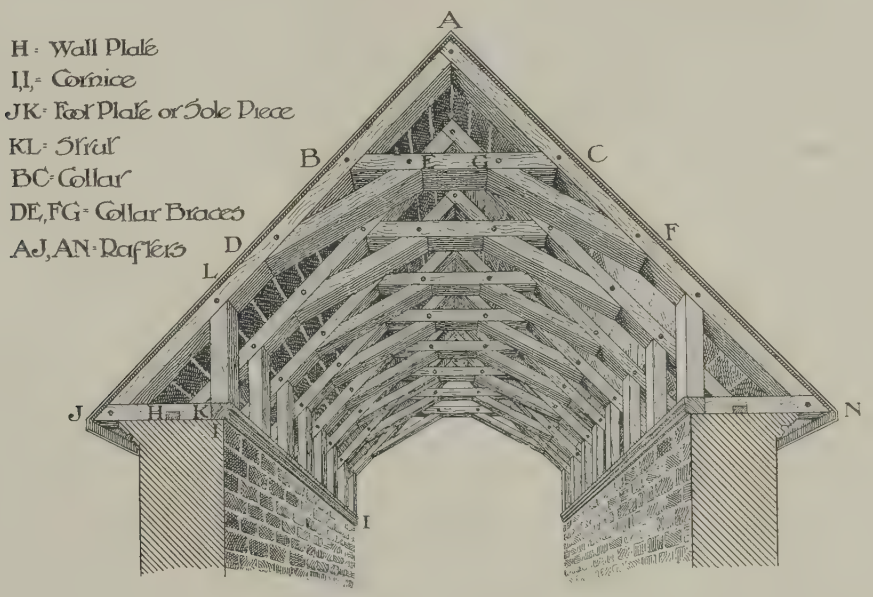


bulging in. With a view to this, therefore, a collar must be used which can withstand a great deal of compression, *i.e.*, which is rigid; and for that purpose nothing is better than a beam of a hard wood, especially oak. Still better to stiffen the collar and assist it in resisting either tension or compression, two timbers set obliquely are added, viz., DE and FG; these are framed into the rafters and the collar, and are kept in their places by pins: they are termed *collar braces*.[2] At the foot of each rafter another precaution is taken against spreading: for the foot of every rafter is attached, directly or indirectly, to a horizontal beam placed on the top of each side wall; it is seen in section at H in Heckington porch: this is termed a *wall-plate*. The position of the wall-plate varies; usually it is set centrally, as at Heckington; but

[1] *I.e.*, a small section was cut out of the side of one end of each, so that they fitted together to the full thickness of the unhalved timber.

[2] When a collar is designed to resist wind pressure rather than spreading, it is sometimes termed a *wind beam*.

sometimes is near the outer face of the wall. Sometimes the wall-plate was merely laid on the surface of the wall, as at Heckington; it was better construction if it was embedded in the wall, so that if the roof tried to spread, there would have to be thrust out, not only the wall-plate, but the upper course of the wall as well. Sometimes there was more than one horizontal plate; there is only one at Long Stanton, but at Heckington there is a second at I, partly projecting from the inner face of the wall, which is termed a *cornice*. When the wall-plate was placed near the outer face of the wall, the rafters were sometimes directly framed into it. Usually a more complicated device was adopted. A horizontal piece, JK, at Long Stanton and Heckington, was fixed at right angles to the wall-plate, being notched over it; this

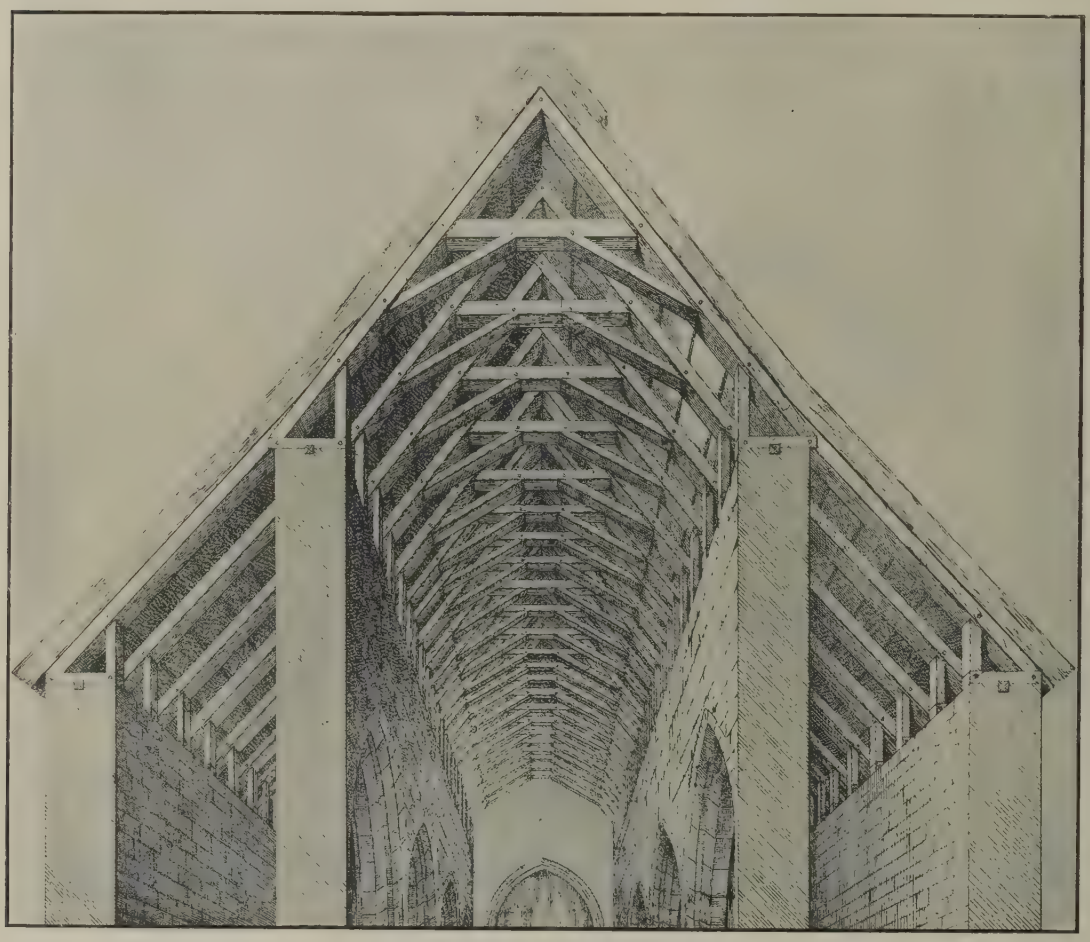


B. B. Heckington Porch, Lincolnshire

is termed the *solepiece* or *footplate*. To the outer end of the footplate the foot of the rafter was framed and pinned at J. Moreover, to the inner end of the footplate there was framed and pinned at K an "*ashlar piece*" or *strut*, KL, the upper end of which was framed and pinned to the rafter at L. Thus the rafter was attached to the footplate JK (and indirectly to the wall-plate H) at two points J and L. The strut KL also served to stiffen the rafter against pressure by wind or the weight of the roof covering. Such a roof has normally seven sides; viz., strut, rafter, brace, collar, brace, rafter, strut, and may be termed a *heptagonal rafter roof* or a *Trussed Rafter* roof, or simply a *Rafter* roof.

Variants occur. Sometimes, but rarely, the collar is omitted, the braces being

continued to the rafter opposite, so that they intersect; this roof is termed a *scissors beam* roof, p. 789, Fig. c; it will be noticed that it has only six sides instead of the normal seven; sometimes there is more than one collar (B); sometimes, though there is a collar, the braces nevertheless are continued and intersect (A). At Long Stanton the span of the roof is 14 ft.; the rafters are 6 in. by 5 in.,

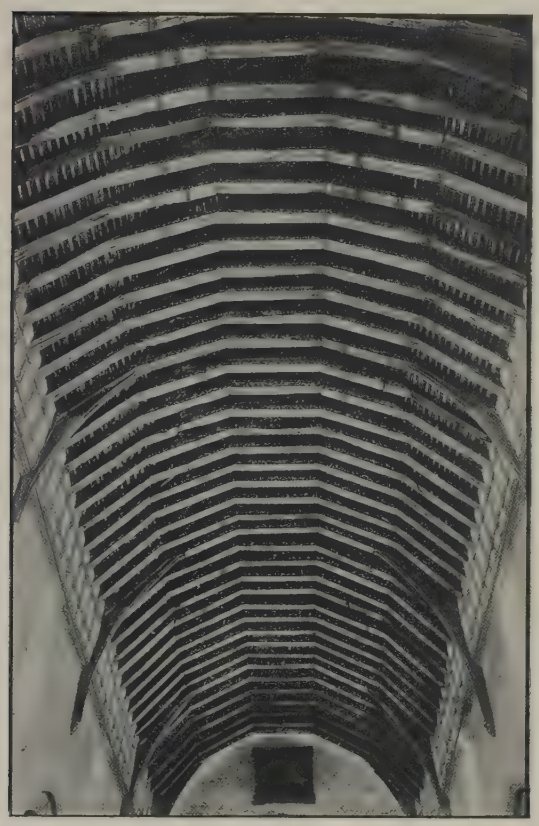


B. B.

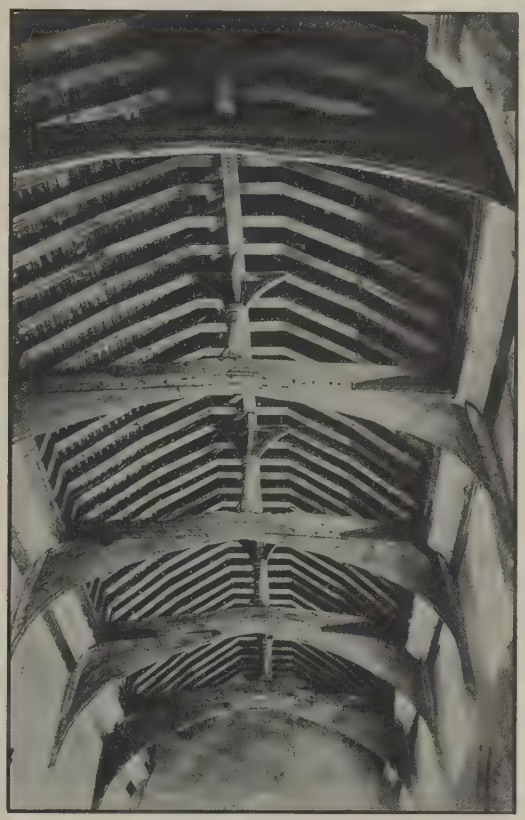
Long Stanton, Cambridgeshire

the collar $6\frac{1}{2}$ in. by $3\frac{1}{2}$ in., the wall-plate 3 in. by $2\frac{1}{2}$ in.; the rafters are spaced 1 ft. apart. These *rafter roofs* are trusses or frames of rafters, reinforced in various ways, and on them were laid boarding and lead, or thatch or tiles. Occasionally a rafter roof was ceiled; *e.g.*, at Heckington and Nutfield (795) the chancel is ceiled, the nave roof being left open; sometimes a single bay only was boarded, *e.g.*,

over an altar or a rood; as in the wagon ceiling of Hennock, Devon (823). In spite of the small scantling of their pieces and the absence of a longitudinal tie, except so far as it is represented by the wall-plate, these roofs were sometimes put up over wide spans; *e.g.*, the nave of Ely cathedral, which is about 35 ft. wide, and that of Peterborough nave, which may possibly be of Norman date (794): they are more suitable, however, for small churches, in which they occur in great numbers.



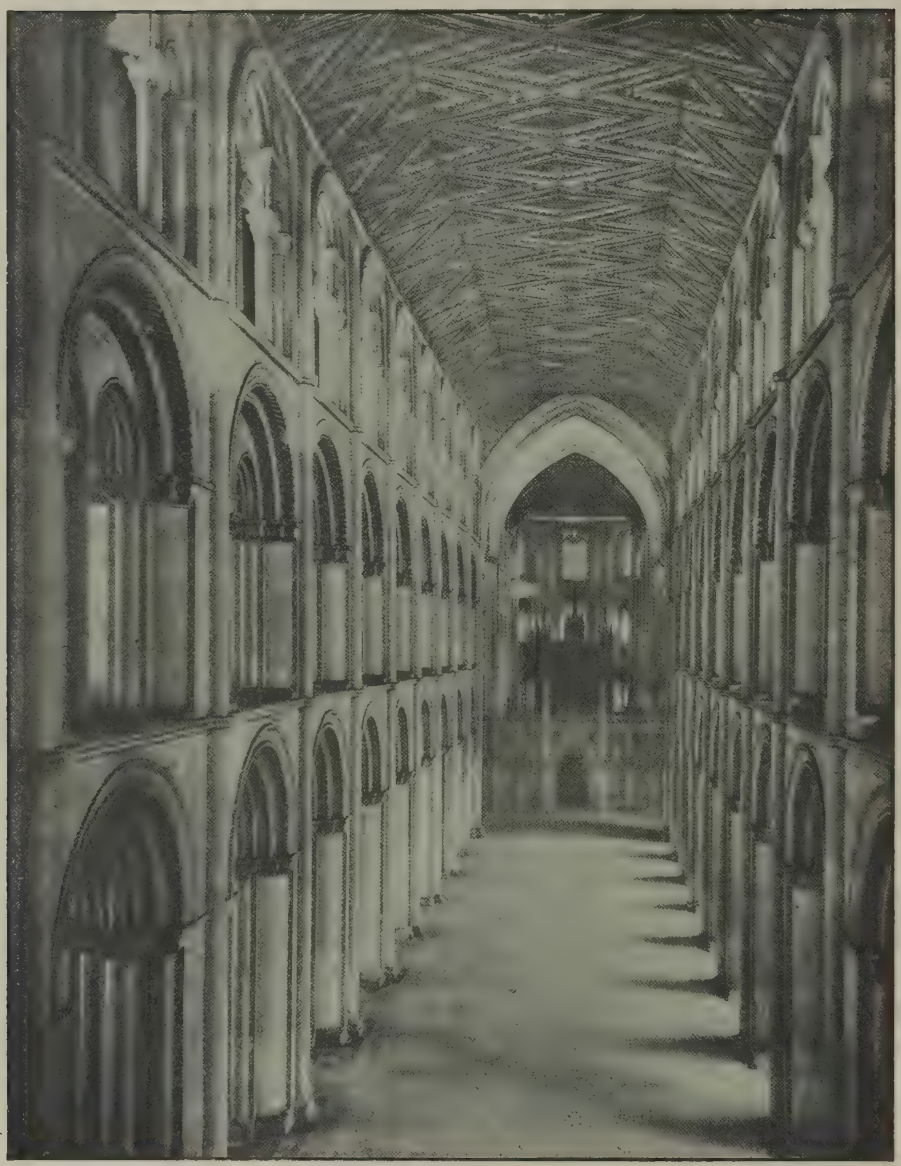
F. H. C. Dennington, Suffolk



F. H. C. Barking, Suffolk

Their small scantlings precluded a long life, and many no doubt have decayed and been renewed; the earliest known are of the thirteenth century; but they were doubtless in use long before that. They were so cheap and serviceable that in the smaller churches they remained in use throughout the whole Gothic period, and are frequently copied in modern churches.

In many cases old rafter roofs were improved by later additions, and in new roofs the improvements were incorporated. Thus at Climping, Sussex, tie-beams

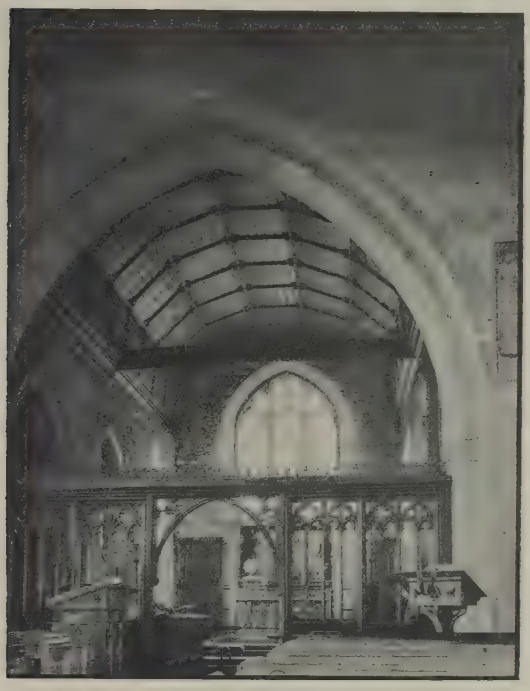


Peterborough Nave

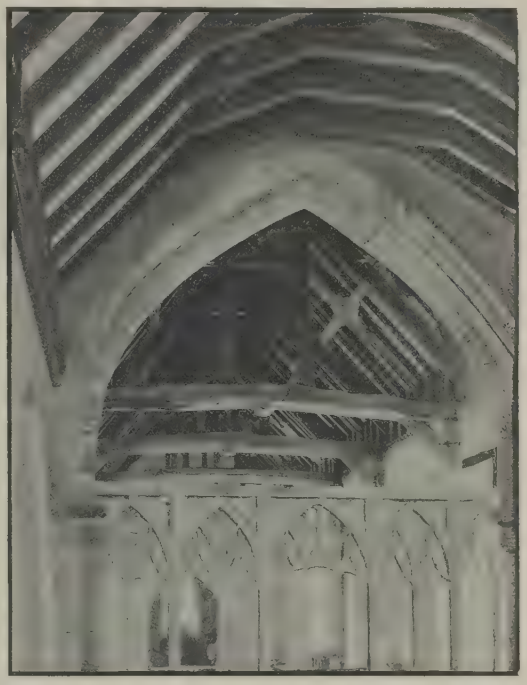
were added; which, being fastened to the wall-plate, precluded all risk of spreading; *cf.* Nutfield, Surrey (795). Or, as at Woodbastwick, Norfolk,[1] there is both tie-beam and kingpost; or, as at Saltfleetby All Saints, Lincolnshire (795), there is tie-beam

[1] Illustrated in *Gothic Architecture in England*, 551.

and queenposts. The great defect, however, of the rafter roof was the absence of any longitudinal tie other than the wall-plate, which operates only at the foot of the rafters. This was remedied where a rafter roof had tie-beams and kingposts, by making the kingposts carry a longitudinal beam placed a few feet lower than the ridge of the roof; *e.g.*, at Barking, Suffolk (793); if the roof had collars the longitudinal beam might be framed into the collars.



F. B. Nutfield, Surrey

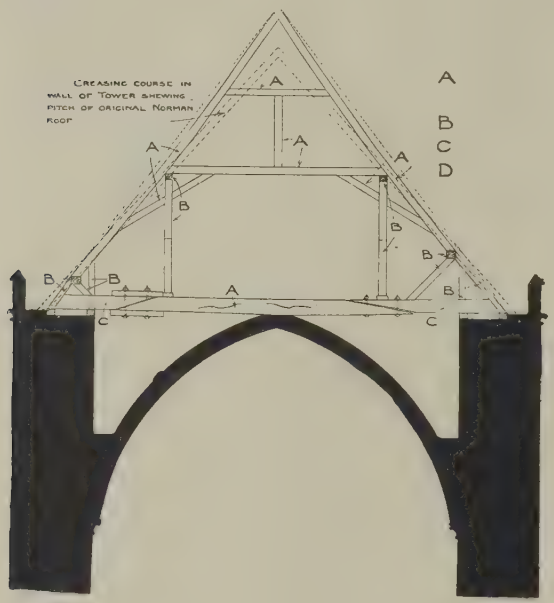


F. B. Saltfleetby All Saints, Lincolnshire

DOUBLE TRUSS ROOFS

In the above examples the roof consists of a single truss or frame extending the whole length of nave, chancel, transept, or porch, and this truss is composed of rafters with their concomitants. But in all the roofs described below—tie-beam, arch-braced, and hammer-beam—the roof is divided, like a vault, into several compartments or bays, which usually correspond with the arrangement of the bays of the pier-arcade; *e.g.*, if there are three piers and four arches in the ground story of the church, there will usually be four bays in the roof; if four piers and five arches, then five bays; and so on. Each one of these bays of the roof has a truss or frame of its own, which is not composed of light rafters. It consists

of at least three longitudinal members; the wall-plate, which the rafter roof also possessed; a *ridge beam*[1] and a *purlin* or purlins. There may be one purlin on each side, as at Hereford (797) and St. Martin's, Leicester (802); two, as at Woolpit (834); or they may be so numerous as to divide the roof into small panels, as at Ruthin (814). Moreover, at intervals, an exceptionally massive rafter is inserted, termed the *principal rafter*, or, shortly, the *principal*; *e.g.*, at West Walton (832) and Earl Stonham (832). The truss or frame, therefore, of each bay is bounded at the apex by the ridge beam, at each foot by a wall-plate, on either side by a principal rafter;[2] and along its axis runs one or more purlins. The ridge beam and purlins are framed and pinned into the principal rafters. On this frame, or notched into it, are laid light rafters, which are distinguished from the principals as *common rafters*; these compose the second truss: as a rule they are left unmolded.[3] These common rafters are also attached at the foot to a foot-plate, while at the top they are attached to the ridge beam. The backs both of principal and common rafters were sometimes rebated, as at Pulham, St. Mary Magdalen, to carry boards covered with lead. Of these double-truss roofs the chief divisions are those with tie-beams, those with arched braces, and those with both arched braces and hammer-beams.



J. B. C. Winchester Cathedral

TIE-BEAM ROOFS

The one thoroughly effective way of preventing a roof from spreading is to employ tie-beams. These have been in use from time immemorial, and still, constructionally, give the best form of open roof. Sometimes it was thought sufficient to lay the tie-beam on the top of the wall-plate and secure it by pins; *e.g.*, at Climping, Sussex; usually, however, the ends of the principals are framed

[1] The ridge beam is omitted, by exception, in the chancel roof of St. Mary, Leicester; illustrated in Brandon's *Roofs*, p. 27.

[2] The roof may, by exception, have common rafters only; there are no principal rafters in the roof of the chancel of St. Martin's, Leicester, nor in that of Solihull (822).

[3] The difference between principal and common rafters is emphasised in the roof of the Vicars' cloister of Hereford (798). Molded common rafters are seen by exception here and at Ruthin (814).

into the tie-beam. There are, however, serious objections to tie-beams. In the first place, if it be desired to vault a church, the apex of the vault, as is seen in Winchester nave (796), cannot rise higher than the tie-beams of the roof; in vaulted churches, therefore, the tie-beam roof was often discarded for some other form

A. W. Hereford: Vicars Cloister

of roof which provided more headway; *e.g.*, the vaulted cathedral of Exeter has rafter roofs. Secondly, if the span of the church was considerable, tie-beams had to be of great thickness and depth: these, owing to their great length, must have been difficult to transport round street corners, and their great weight must often

have crushed in the miry mediæval roads and weak bridges. When roofing Abingdon abbey, Faricius sent to Wales for beams; they were brought at great cost in wheel cars, each drawn by twelve oxen, which took six or seven weeks going to and from Shrewsbury. Worst of all, however massive, tie-beams tended to sag in the centre: to prevent this, timber of enormous scantling was often employed; *e.g.*, in the Vicars' cloister at Hereford (797); in the aisle roof of St. Martin's, Leicester the original timber out of which the tie-beams were cut must have been nearly 5 ft. deep (818). The favourite remedy for sagging was to

A. W. Hereford: Vicars' Cloister

camber the tie-beam, cutting away a great deal of its under surface at and near the centre, thus giving it more or less of an arched form. This was a favourite remedy at all times; from the aisle roof of St. Martin's, Leicester, which is late thirteenth-century work, to that of the Cirencester chapel (805), which was added *c.* 1430.[1] In small churches, to save the trouble of hewing or sawing the tie-beam to shape, it was common to use beams which were crooked naturally; *e.g.*, at Saltfleetby All Saints (795).

[1] Other examples of cambered tie-beams are illustrated from Barking (793) and Walsham-le-Willows, Suffolk (799); and Mobberley, Cheshire (801).

In many of these roofs an upright was set up on the centre of the tie-beam; attached by two curved braces to the ridge beam, and by two more to two of the principal rafters; this is termed a *kingpost*; *e.g.*, Swardeston, Norfolk, and Hereford cloister (797). Now there are two ways of employing a kingpost. Nowadays we might make the principal rafters and ridge beam very strong, and suspend the tie-beam at its centre from the ridge beam by a chain or by an upright post bolted and strapped to the tie-beam; if the ridge beam and principals were sufficiently strong, this would hold up the tie-beam and prevent it from sagging. But in the mediæval roofs the practice was the very reverse. The kingpost rested on the back of the tie-beam and helped to support the ridge beam; thus the addition of a kingpost made the tie-beam sag worse than ever—a shocking piece of bad construction. This was recognised later; and in a host of village churches the kingposts were removed; on the back of tie-beams marks may often be seen where kingposts formerly stood. Kingposts are well seen at Barking, Suffolk (793), where, with the tie-beams and longitudinal beam, they strengthen a seven-sided rafter roof; see also the roof of Mayfield Palace (845).

F. B. Walsham-le-Willows, Suffolk

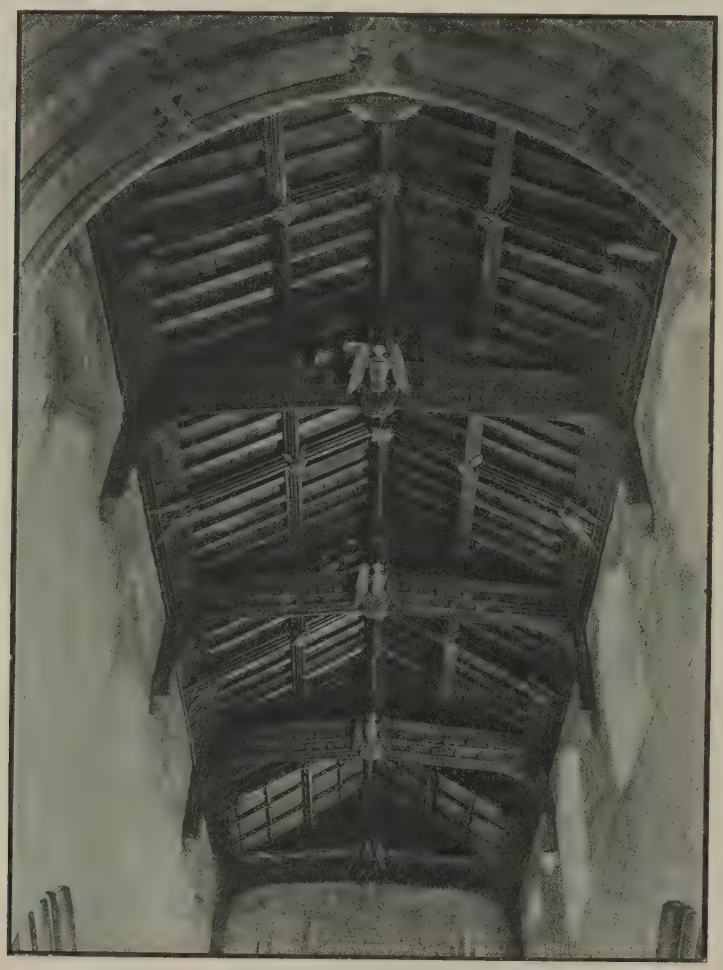
Instead of a kingpost two *queenposts* were sometimes employed, placed some distance from the centre, the weakest point of the tie-beam; these also produced sagging, but not so much; an archaic example is illustrated from Saltfleetby All Saints (795); as a rule their apexes were connected by a collar. In the roof above the vault of Winchester nave (796) the tie-beam, the two collars, and the upright supporting the upper collar are those which were put up in the reign of William Rufus; the two queenposts were added *c.* 1400; at which time also probably the tie-beams were provided with new ends.[1] It will be seen that the centre of the tie-beam is embedded in the transverse arch of the vault; another example of bad construction.

The next step is to surmount the tie-beam from end to end with upright posts; these were designed to imitate mullions and tracery in harmony with the rectilinear

[1] They have been *scarfed*; the new ends being joined to the old ones diagonally, so that a bolt passes through both ends, and bolts them firmly together.

tracery of the clerestory windows: superb examples are seen in the Cirencester chapel (805), Mildenhall (804), Mobberley (801), St. Martin's, Leicester (802), and Long Sutton, Somerset (800).

Yet another variation was to separate the two central posts, and by the insertion



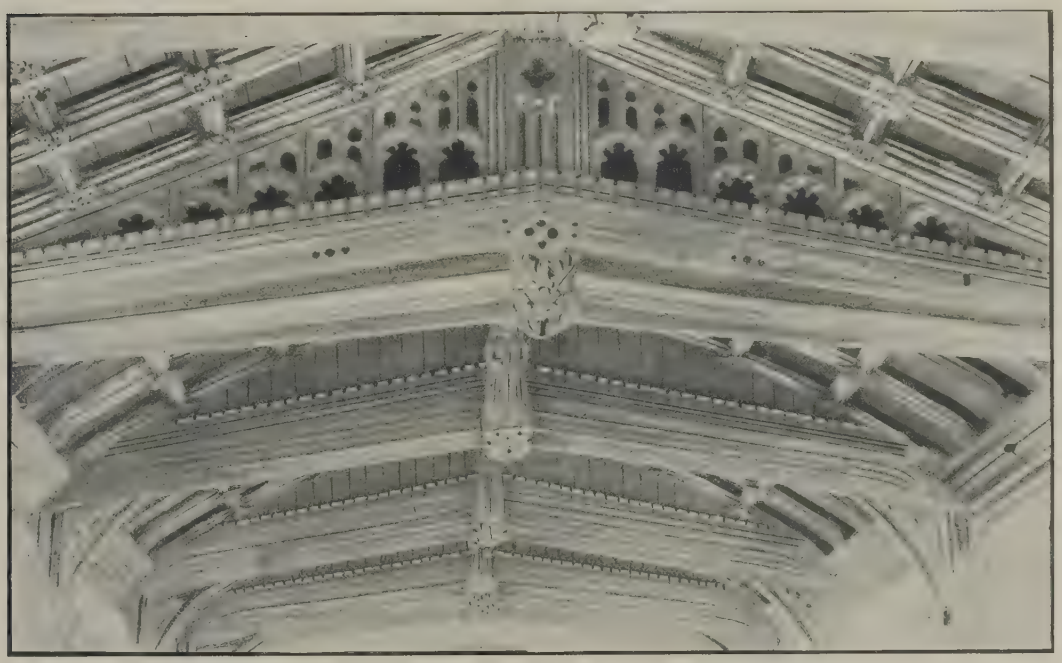
F. R. P. S. Long Sutton, Somerset

of curved braces create a pointed arch. This is well seen at Mildenhall, Suffolk (803), and in many fine churches in Lincolnshire, *e.g.*, Gedney.[1] At Walsham-le-Willows, Suffolk, another variant occurs; the whole of the uprights being omitted, and the arch only left (799). In both cases the succession of arch after arch down the length

[1] Illustrated in *Gothic Architecture in England*, 551.

of the nave roof produces a delightful vista, and minimises the horizontality of the tie-beams.

But the superposition on the tie-beam of kingpost or central arch or mullions and tracery brought down on it still more of the weight of the principal rafters and what they carried, and some support underneath was imperatively required if it was not to collapse. This support was given in the form of *braces*, springing below the wall-plate. Sometimes support was given to the underside of the tie-beam at some point between its ends and centre, as at Saltfleetby All Saints (795), where the braces are straight, Mobberley (801) and Long Sutton (800), where they



J. L. Mobberley, Cheshire

are curved, and Cirencester (805), where they are curved and cusped. Sometimes however, they were allowed to meet under the centre of the tie-beam, supporting it at precisely its weakest point, *e.g.*, at Bere Regis, Dorset, where the carpenter has put up such enormous braces that there is not the slightest chance that the tie-beams shall sag (806). A pair of braces, thus meeting, forms an arch; and as it was desirable that each curved brace, in order to be framed and pinned, should follow closely the portion of wall and tie-beam to which it belonged, and as the latter was much longer than the former, it followed that the most suitable arch for the purpose was a four-centred one.[1] This was a delightful

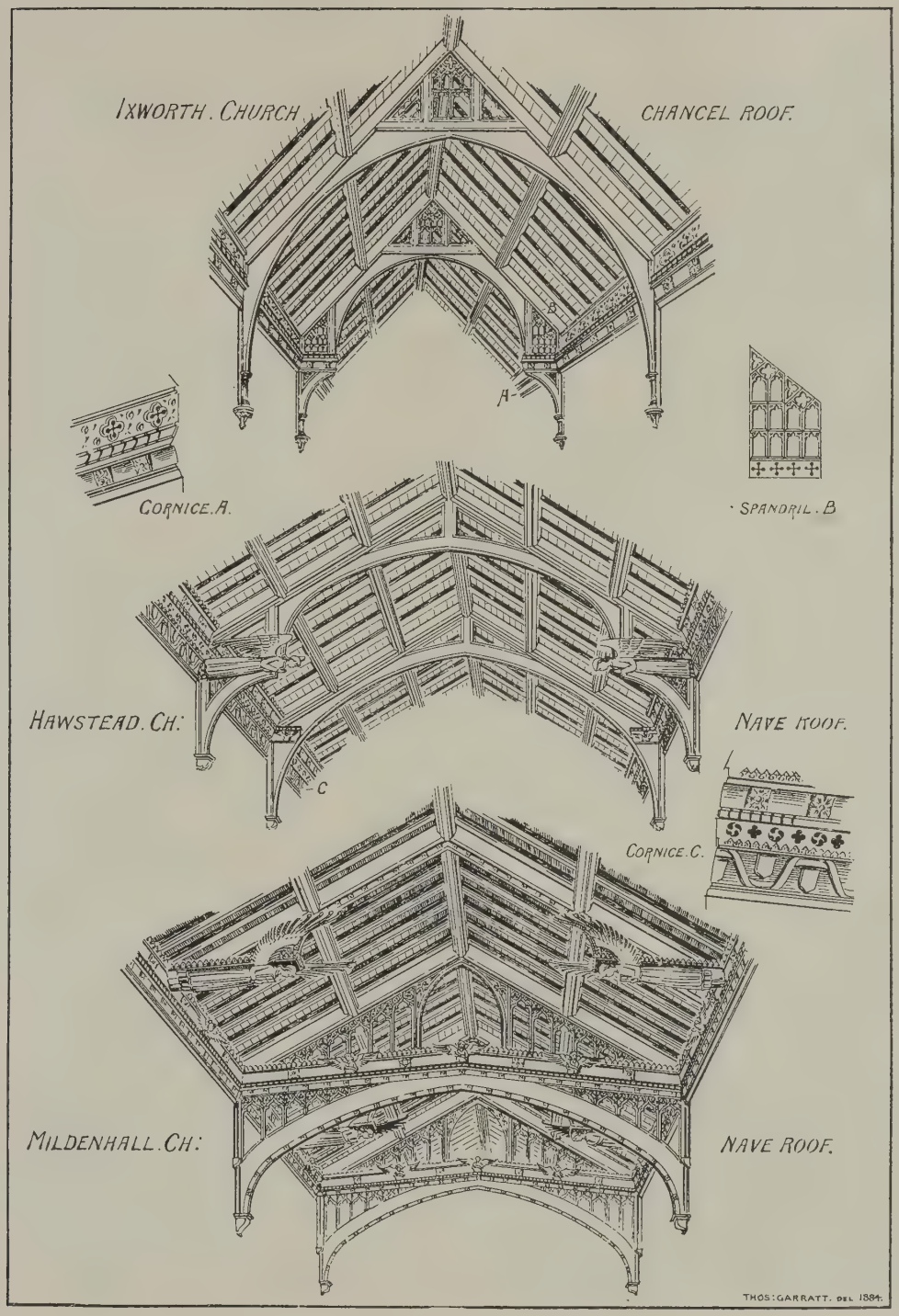
[1] This is well seen at Framlingham (844), except that the four-centred arch supports a collar, not a tie beam.

discovery; for by the time this form of roof had been elaborated, the four-centred arch had come into general use in window heads and door heads, and its appearance up above put the roof still more in harmony with its surroundings. Fine examples of a tie-beam supported by a four-centred arch are seen in the chancel of St. Martin's, Leicester (802), and Mildenhall, Suffolk (803), where the four-centred arch as well as the tie-beam carries mullions and tracery; this was

B. B. Chancel of St. Martin's, Leicester

artistically, as well as constructionally, the most successful roof of all, adding yet more to the arcuated character of the church.

One more addition was made. At Saltfleetby (795) the village carpenter has stuck corbels on the wall a few feet below the tie-beam, and each supports not only a brace but an upright post, termed a *wall post* (or "*wall piece*"), supporting the tie-beam near its end, and framed into it. The object of the wall post, however,


IXWORTH. CHURCH
CHANCEL ROOF.
B
A
CORNICE. A.
SPANDRIL. B
HAWSTEAD. CH:
NAVE ROOF.
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Mildenhall, Suffolk

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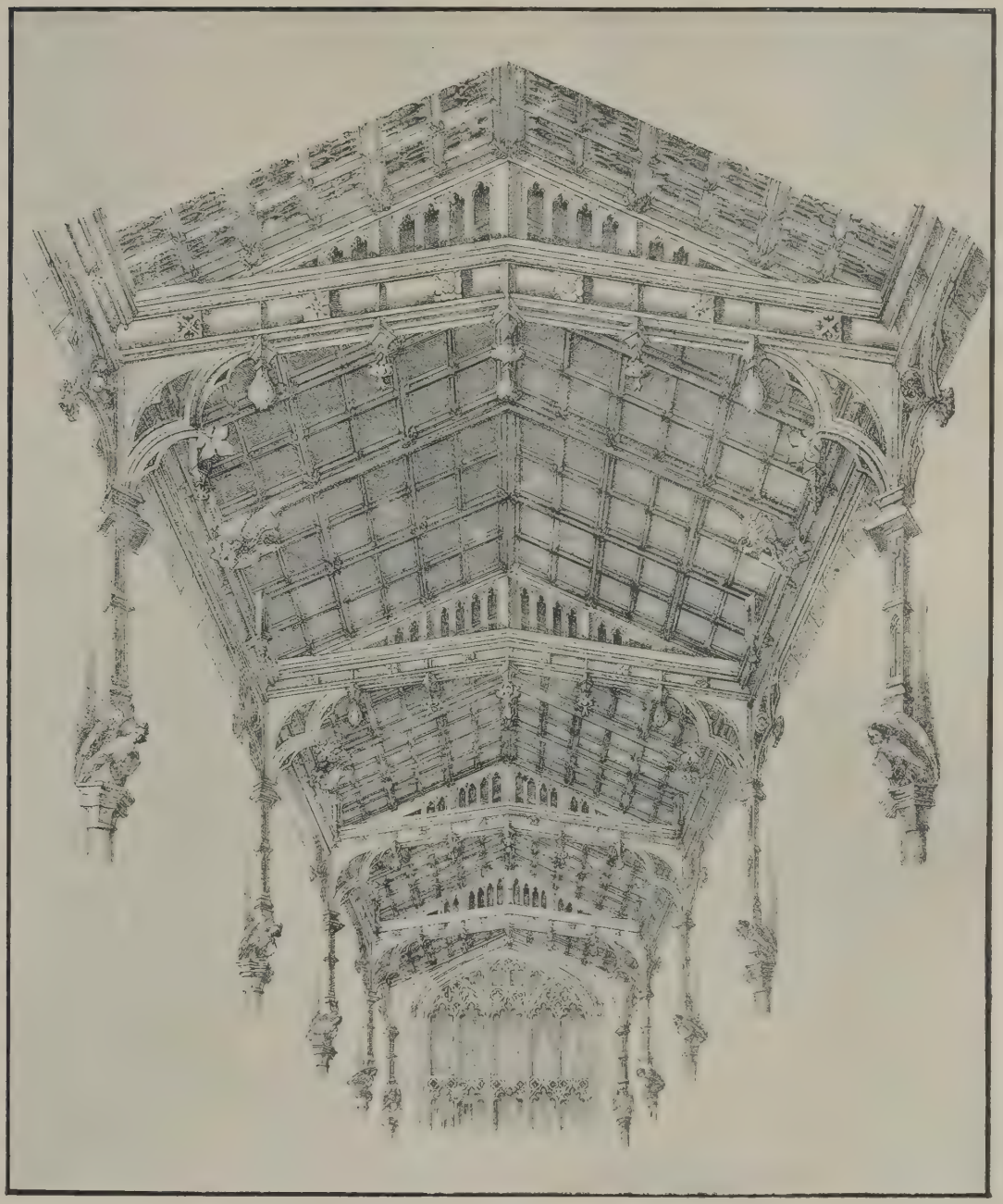


B. B. Cirencester: Trinity Chapel

is not really to support the tie-beam, which near its end is strong enough for anything, but to provide a piece into which a brace can be framed. Once introduced, the wall post was employed in all sorts of roofs and received many charming developments. At Mildenhall it plays a minor part; at Mobberley it is short and massive, and its foot is masked with an angel with outspread wings; at Leicester the lower part of the wall post receives similar treatment, and the curved brace is framed and pinned to its upper portion only; at Cirencester and Lavenham[1] a hint is taken from vault design, and the long slender wall posts are supported by shafts of freestone or marble, bringing what to the eye are the supports of the roof well down into the spandrels or to the apexes of the pier-arcade.

C. F. N. Bere Regis, Dorset

Another and very important development was to follow. If the Mobberley roof (801) be examined, it cannot but occur to one that the tie-beam being so near the roof, and being cambered so as to have a slope either way, it would be as well to let the purlins rest directly on it, and to do away with the principal rafters altogether, thus at once economising timber and reducing the weight of the roof. This was done quite early; in the south aisle of St. Martin's, Leicester, by the end

[1] It has been said above that the principal rafters are placed over the piers, so that the roof is divided up into bays corresponding with those below; but where two bays of clerestory correspond to one bay below, as at Lavenham and St. Stephen's, Norwich (828), the roof divisions correspond to the bays of the clerestory and not to those of the ground story.

of the thirteenth century (818); it was not till late, however, that this scientific form of tie-beam roof became common: owing to its slight pitch it was not indeed feasible to employ it except where the parish could afford to cover it with lead. A fine example is illustrated from the nave of Astbury, Cheshire (809), where the tie-beams have sagged owing to the inadequacy of the curved braces; equally fine is the roof of the south aisle (811). A plain but very impressive roof of this type

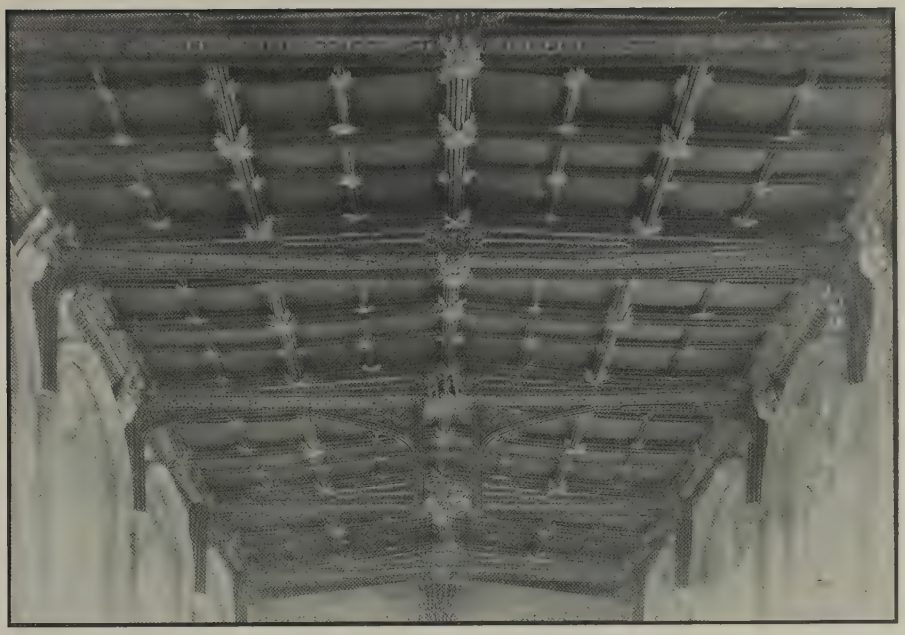
C. F. N. Bere Regis, Dorset

spans the broad nave of Lavenham, Suffolk (808); this leads up to the richer roof of Gawsworth, Cheshire (809), and the magnificent black oak roof which covers the nave and chancel of Gresford, Denbigh, without the interposition of a chancel arch (810).

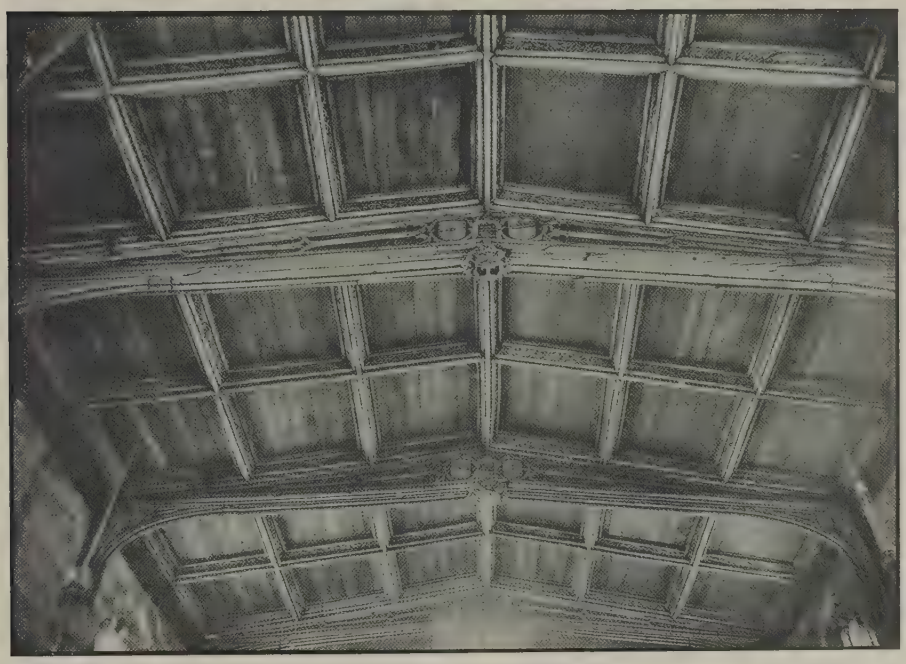
It has been seen what a material improvement was made in the roof by inserting arches beneath the tie-beams. It could hardly fail to suggest itself that similar

G. G. B.

Lavenham, Suffolk



F. H. C. Astbury, Cheshire



F. H. C. Gawsworth, Cheshire

arches should be added between each pair of wall posts, preventing any lateral movement on their part, and framing in the clerestory windows, whose outlines they often closely followed; this is well seen at Leicester (802), where the braces, both of tie-beam and wall posts, being four-centred arches, harmonise admirably. At

F. H. C. Gresford, Denbigh

Cirencester (805) the braces, both of the tie-beams and the wall posts, are exceptionally short.

Longitudinal braces sometimes occur in the centre of the roof, each end resting on a tie-beam or a collar and usually framed into the foot of a kingpost; *e.g.*,

Adderbury.[1] The apex of each arch supports the ridge beam in the centre of each bay. Other longitudinal braces may be framed in between the rafters to stiffen the roof, as at Clun (819) and Worcester (820); but in a tie-beam roof constructed with adequate purlins and ridge beam they were unnecessary.

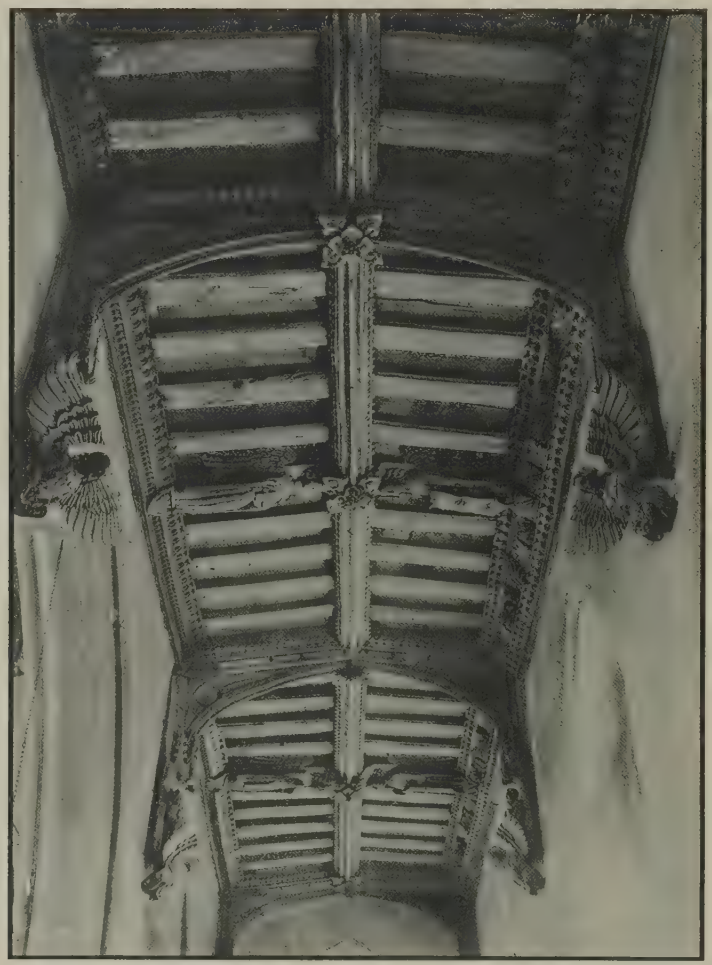
Another artistic improvement was to give the roof a base course in the shape of a cornice. In the Heckington porch (791) it is seen in its simplest form; it is merely an inner wall-plate, allowed to project beyond the face of the wall. In most cases this cornice is merely molded, as at Leicester (802) and Mobberley (801); but in later examples, such as Astbury (809), Cirencester (805), and Mildenhall (803), it is much

F. H. C. Astbury Aisle

emphasised. At Cirencester it contains a hollow "casement" in which are square flowers; at Astbury, Long Sutton, and Mildenhall it is doubled. As a rule it was made to slope forward, like pictures on a wall, in a line with the eye. Sometimes it is an inner wall-plate; sometimes it is framed to the tie-beams or the hammer-beams; sometimes to the wall posts. Cornice design is illustrated in progressive richness in the hammer-beam roofs of West Walton, Norfolk (832), Worlingworth (838), Fressingfield (831), Woolpit (834), and Earl Stonham (836), all in Suffolk; and in those of West Walton (832) and North Creake, Norfolk (833).

[1] Illustrated in *Gothic Architecture in England*, 558.

When the late tie-beams were so nearly flat, it was usual to design the roofs as if they were ceilings. All that was necessary was to increase the number of purlins; at Astbury and Mobberley there are three on each side of the roof, at Ruthin, five; these, intersecting the principal and common rafters, divide the whole



F. H. C. Woolpit South Aisle, Suffolk

roof into a multitude of small square panels, easily responsive to decorative treatment. At Astbury, Gresford, Mobberley, and Ewelme (843), the mitreings of the purlins and rafters are masked by bosses of carved foliage or angels; at Ruthin, and over Gresford chancel, the panels also receive diversified carving.[1] In these flattened

[1] For details of the construction of a roof of this type at Walsoken see Colling's *Gothic Details*, i. p. 18.

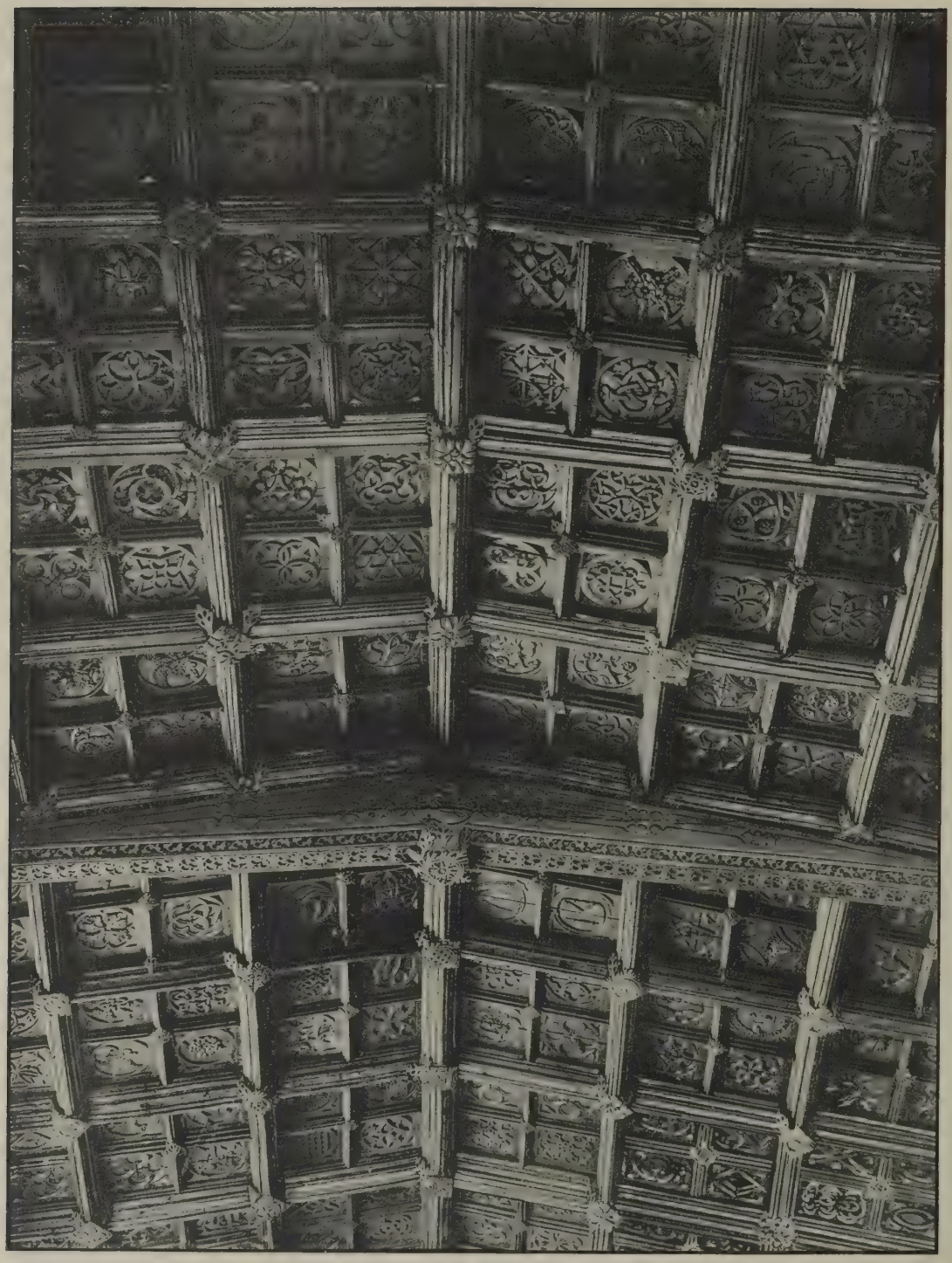
roofs and in ceilings colour also was frequently employed; in the Clopton chantry of the great Suffolk church of Long Melford[1] the panels are painted blue, powdered with gold stars,[2] the rafters being painted red, with scrolls on their undersurface

F. H. C. Barking North Aisle, Suffolk

bearing the prayer **JHu mercy And gramercy**: other prayers appear on the scrolls of the cornice. The flat aisle roofs of St. John, Maddermarket, Norwich,

[1] Reproduced in colour in Colling's *Gothick Ornaments*.

[2] The powdering is sometimes effected by affixing gilded stars of cast lead with straight or wavy radiating rays, each brought to a ridge along the centre, so as to cast diverging lights from the gilding.



W. M. D.

Ruthin, Denbighshire

have paintings of angels on the panels, the ground being diapered with the letters Jhū encircled by a wreath.[1] The colouring of the roof of the fine Devonshire church of Cullompton, as repainted, is in red, green, and gold (823). Ceilings at Yarnton and Beverley St. Mary are painted to represent "the starry firmament on high" (815). At Hitchin the outer edges of the panels have beautiful cuspation (816). An admirable molded ceiling remains in the hall of the ancient manor-house of the Bishops of Lincoln at Liddington, Rutland; its cornice is composed of miniature fan-vaulting.

At this culminating point we leave the tie-beam roof. Enough has been said to shew that, looked at from the joint point of view of construction and design, it is the king of roofs. Arch-braced roofs may vie with it, hammer-beam roofs may surpass it artistically, but constructionally the direct tie provided by it is far preferable to the indirect ties which give what strength they possess to the other two forms of roof. Noble examples have been illustrated; but a host more are to be found still unknown to fame, *e.g.*, Martock, Somerset; in Suffolk especially noble examples of every type abound; nowhere in England, or indeed in Europe, are to be seen such numerous examples of scientific and artistic carpentry as in the churches of Suffolk.

F. H. C. Beverley St. Mary

ARCH-BRACED ROOFS

Admirably designed as the tie-beam roofs were, yet they had the defect of imposing a very great weight on the walls. It was evident that at anyrate in a village nave or chancel of moderate span a roof of much lighter construction would be adequate. This was got by reverting to some extent to the construction of trussed rafter roofs, in which there was a collar beam stiffened by diagonal braces (791). It was only necessary to make these braces curved instead of straight, to allow them to meet in the centre of the collar, forming an arch, and to continue them downwards to the wall-plate, or better still, to a wall post, and the problem was

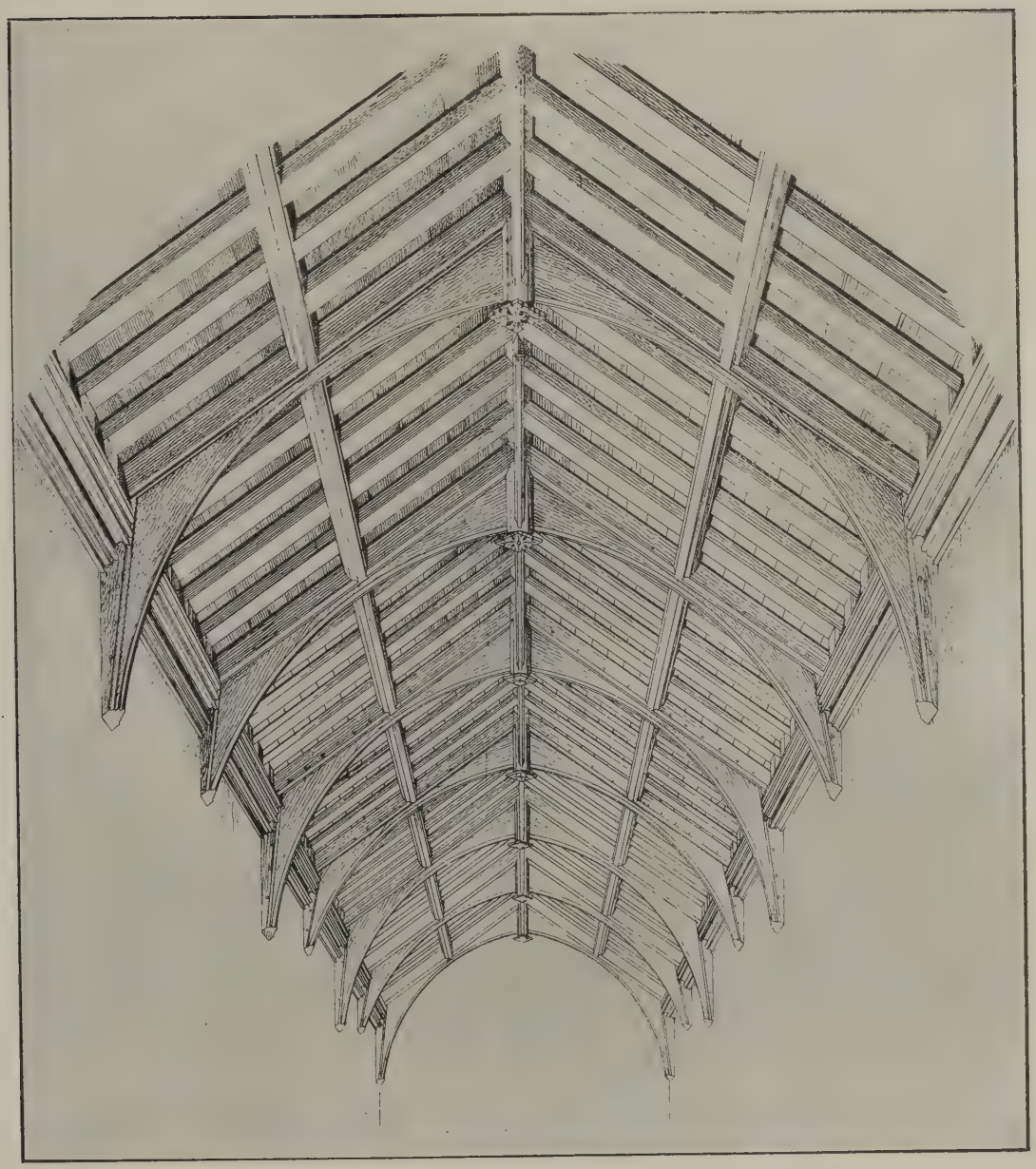
[1] On the painting of roofs see Keyser's *List of Buildings in Great Britain having Mural and other Painted Decorations.* 3rd edition, London, 1883. Messrs Brandon reproduce in colours the roofs of Knapton and Palgrave; see *Roofs*, Plates 26, 27, 28, and 22.

solved (817). A multitude of elegant roofs of this type may be found in Suffolk; it is a type whose arcuated form is in admirable harmony with pier-arcade, window head, and doorway head; the upper portion of the roof at Framlingham is an excellent example (844). Arched braces are often employed alternately with hammer-beams, the former coming down to the apexes of the windows, where there is no room for wall post and hammer-beam; *e.g.*, Ixworth and Hawstead, Suffolk (803); and Southwold chancel (839).

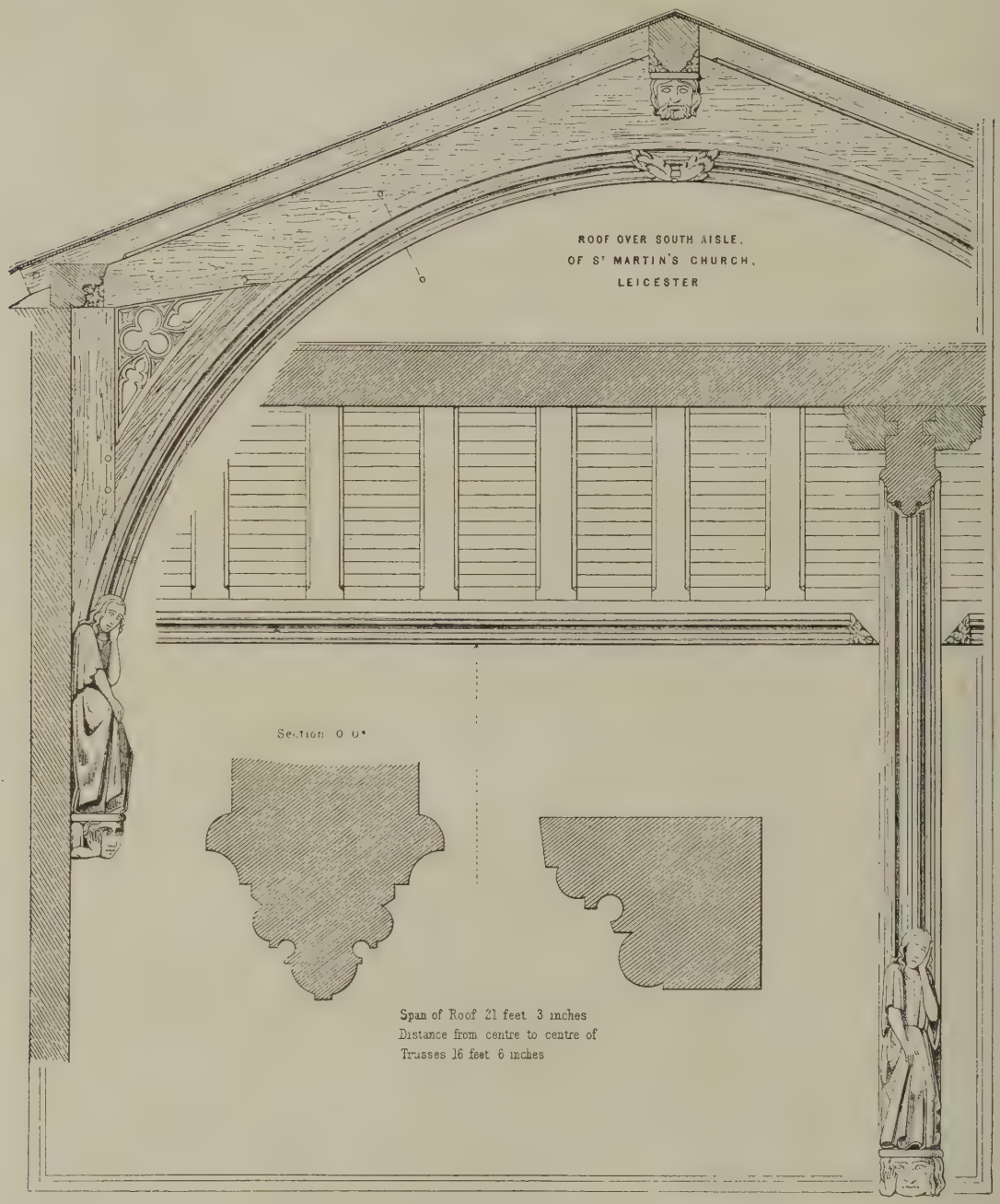
Occasionally the collar is omitted, the arched braces running up to the ridge

G. G. B. Hitchin, Hertfordshire

beam, as at Starston, Norfolk (817). Of this type one of the most daring in construction is that over the broad nave of Sall, Norfolk, which has only escaped collapse owing to the steepness of its pitch, and the length of its wall posts. In all these roofs the arched brace with its wall post is the main security against spreading, and it is most essential that it be thoroughly well morticed and pinned to the principal rafter and wall post, and to the collar where there is one. At first the arched braces were sometimes of the same breadth as the principal rafters; in which case it must have been difficult to frame them into the latter; in the later roofs they are usually not more than 3 or 4 in. thick, so as to admit of being easily framed into the

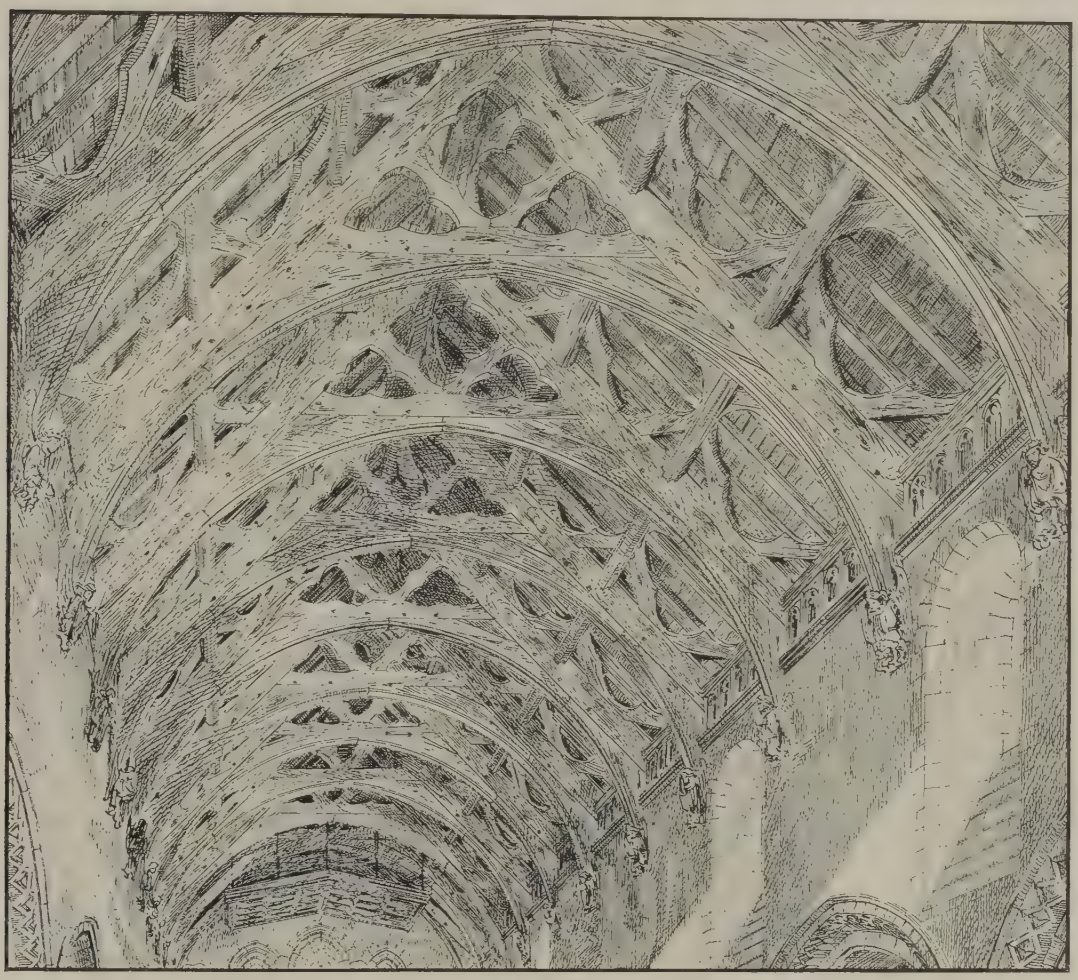


B. B. Starston, Norfolk


ROOF OVER SOUTH AISLE,
OF St MARTIN'S CHURCH,
LEICESTER
Section O O*
Span of Roof 21 feet 3 inches
Distance from centre to centre of
Trusses 16 feet 6 inches

principal; the method of doing this is shewn in the diagram of the roof of Sennen, Cornwall.[1]

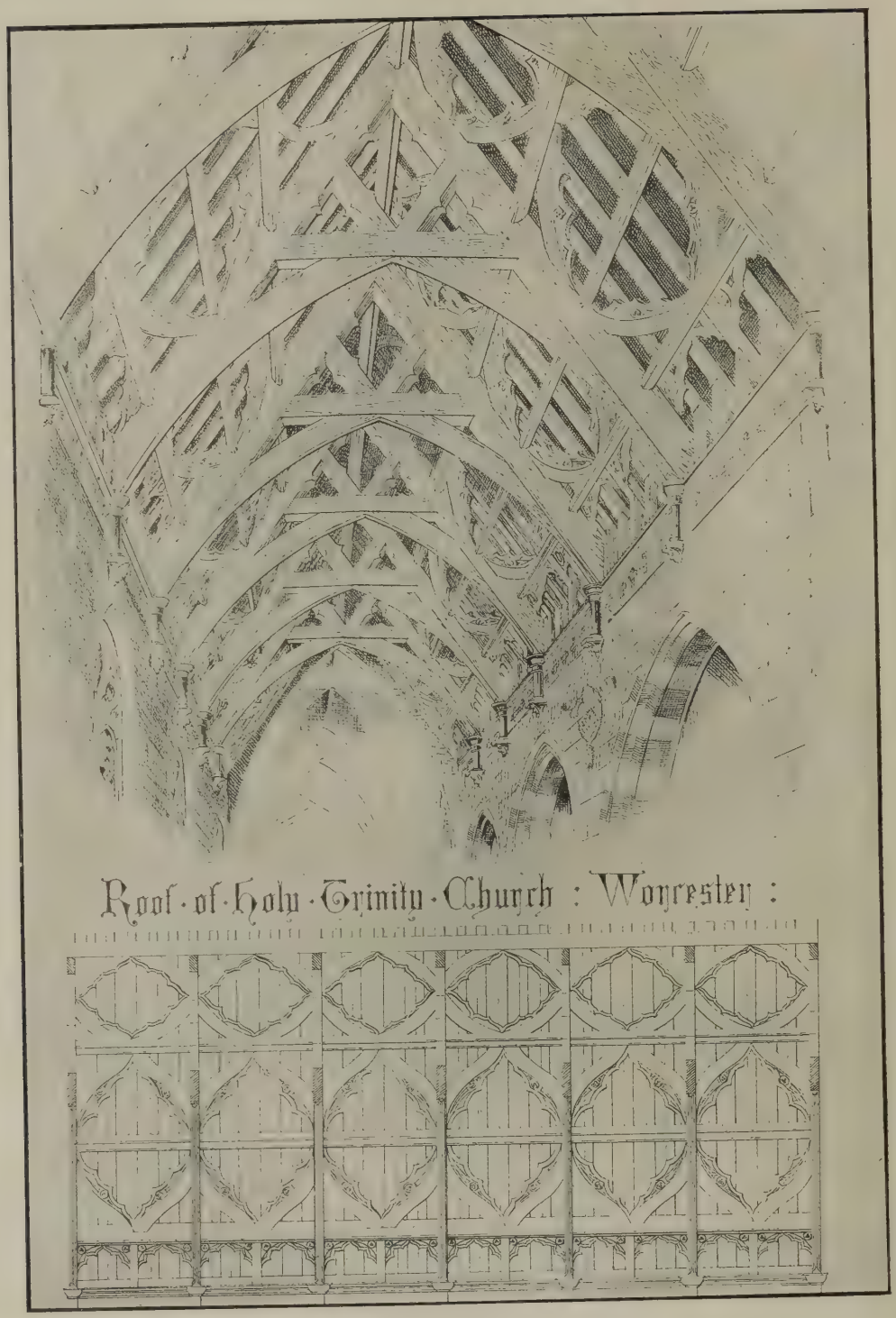
In Norfolk and Suffolk these roofs are light and elegant, and great reliance is placed on the wall post. In the West of England and along the Welsh border is a



G. E. S. Clun, Salop

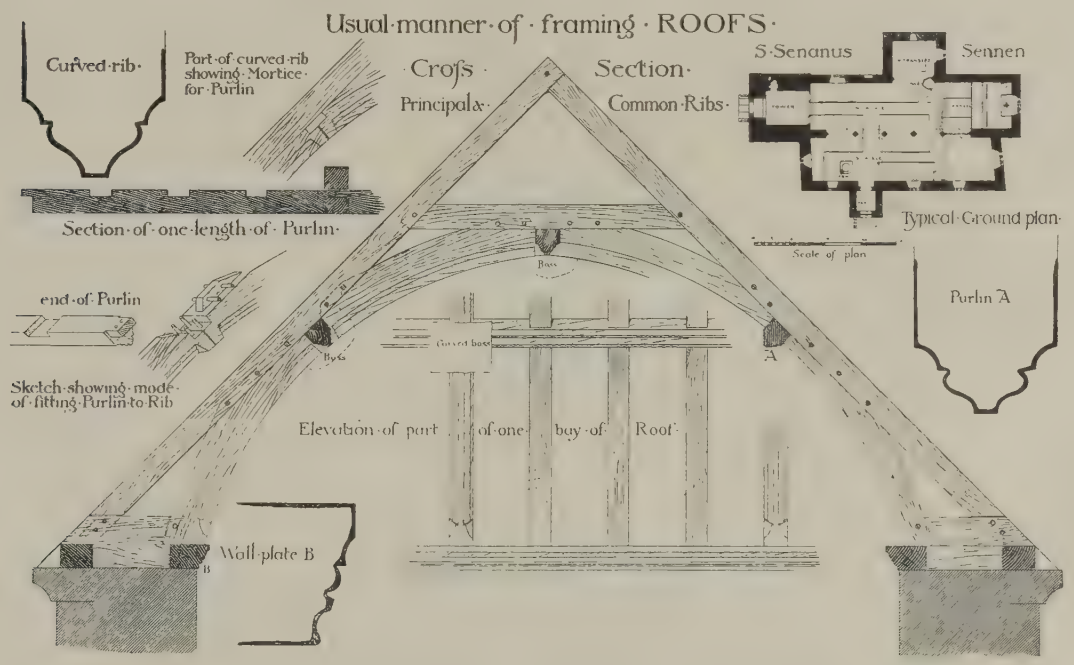
distinct type of arch-braced roof, less scientific and wasteful of timber, and all the more picturesque for that reason: little importance is given to the wall post, the collars and arch braces being so very massive that the roof cannot possibly spread.

[1] On the left of this diagram is shewn a curved brace pinned to a principal, on the right one pinned to a common rafter (821).



Roof of Holy Trinity Church : Worcester :

Of these there is an interesting example at Worcester. This formerly had a span of 35 ft., and covered the ancient Guesten House of the cathedral, but it was pulled off at a modern "restoration"; fortunately it has been set on the modern church of Holy Trinity, near Shrub Hill station (820). In this, as at Clun, Salop (819), much importance is given to the rafter braces, which give great rigidity to the roof. In the Worcester roof the fact that these braces are of ogee pattern with complex cusping (see longitudinal section) indicates that the roof was put up in the first half of the fourteenth century; the Guesten Hall is known to have been begun in 1320 by Wulstan Bransford, then prior of the monastery. The Clun roof originally



Sennen, Cornwall

covered the nave; then was transferred to a modern south aisle, and has now been replaced in its original position. (Over the altar is seen a rare example of a hanging canopy or tester; something similar occurs above the altar of the northern chapel of Ludlow chancel.)

Then came another change, which produced a great multitude of important roofs, especially in the West of England. In the arched braced roofs illustrated above, whether they have collars or not, *e.g.*, Starston (817), it will be noticed that none of the rafters have arched braces except the principals. But in the rafter roofs every rafter had straight braces. Following this precedent, roofs were designed in which

every rafter had a brace, but a curved one. Sometimes the roofs were designed with major and minor braces corresponding to principal and common rafters, *e.g.*, at Sennen (821); but more often, as at Solihull, Warwickshire (822), with minor braces only. At Solihull this framework is left open. But in hundreds of churches in the West of England, especially in Cornwall, Devon, and Somerset, roofs of the Solihull type are boarded over, and this *wagon ceiling*[1] is divided into a multitude of small rectangular panels, just as at Ruthin (814). At Cullompton the distinction between major and minor braces is much emphasised (823); and the former rest on hammer-beams; at Shepton Mallet (824) and Banwell (846) it is ignored. At Banwell foliated bosses mark the intersections of the ribs; at Cullompton others mark the intersections of diagonal ribs inserted in each panel. The ceiling at Shepton Mallet contains 350 panels, and the designs are only duplicated once. Far more numerous are the foliated bosses,[2] and in these no one has yet discovered a repetition of a single design. In addition there are eighteen large and eighteen small angel supporters, bearing shields charged with various devices; and between the angels are numerous accessory ornaments.[3] It is to be remarked also that whereas in a normal wagon ceiling the frame supports the panels, in this roof the panels support the frame; the panels being carved in rows on planks, these planks nailed to the roof timbers, and the framework of ribs nailed to the panelled planks.

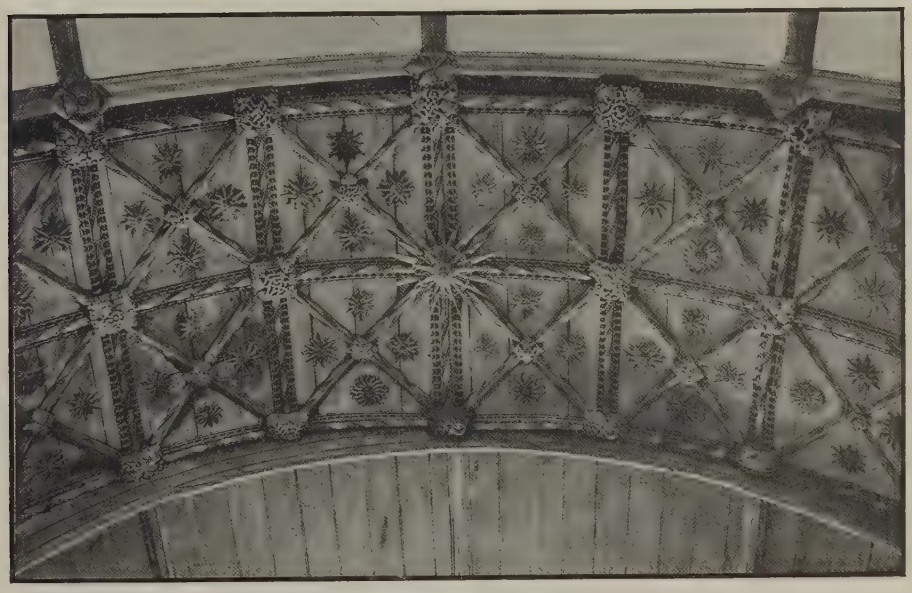
B. B. Solihull, Warwick.

[1] It is so termed from being similar in shape to the canvas tilt of a carrier's van; it corresponds to the tunnel vault of stone.

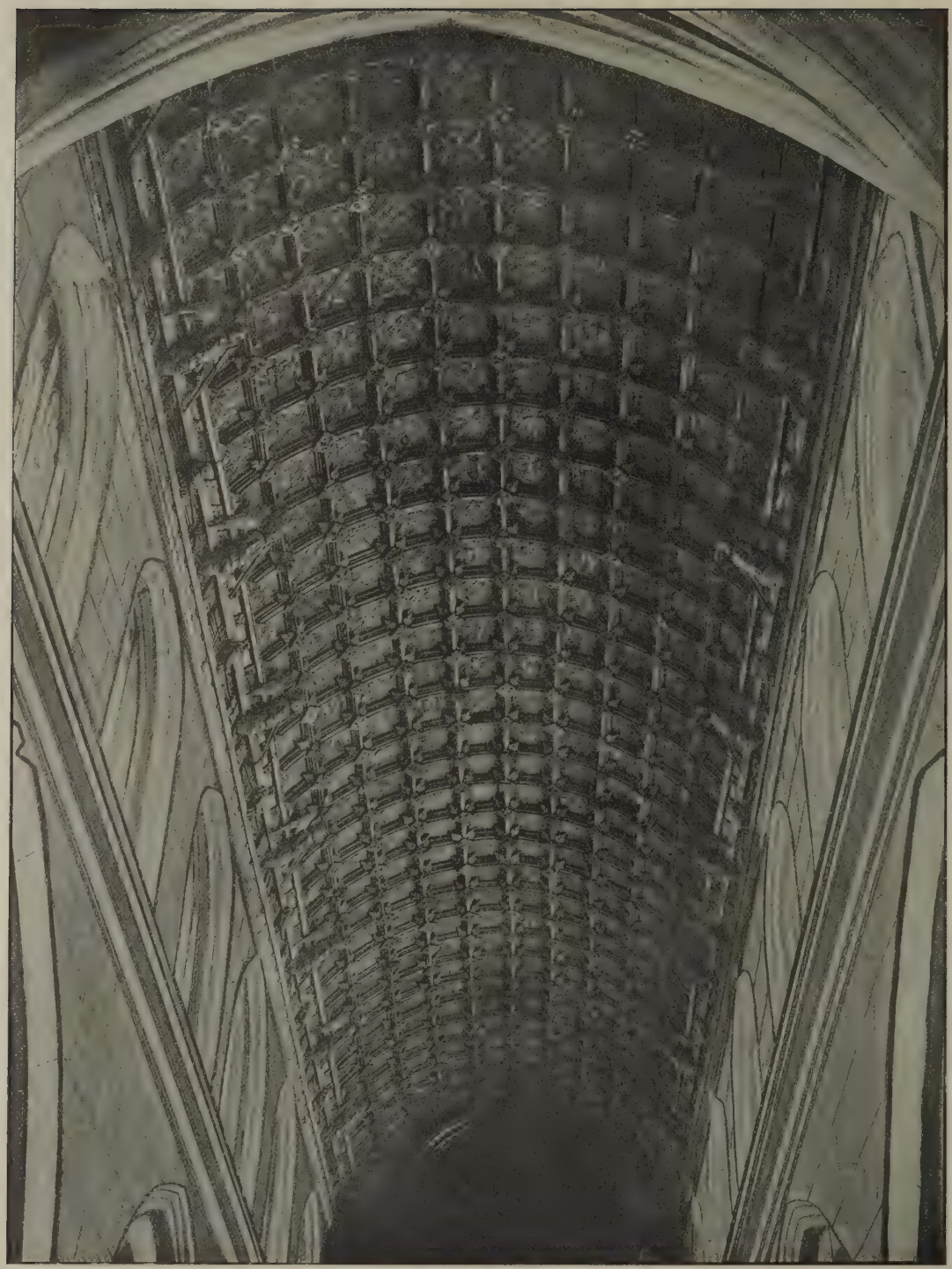
[2] Bosses are sometimes simulated by placing a carved leaf in each corner of a panel.

[3] For the details of this magnificent ceiling the writer is indebted to Dr F. J. Allen; for photographs to Dr Allen and the Rev. R. L. Jones.

F. S. Cullompton, Devon

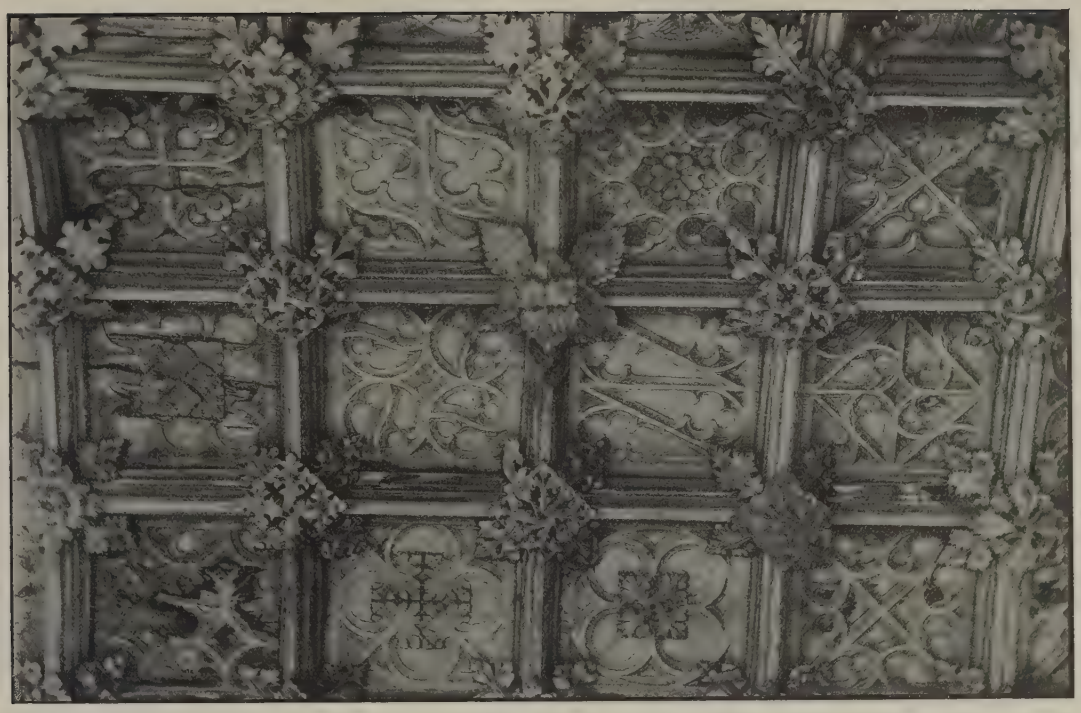


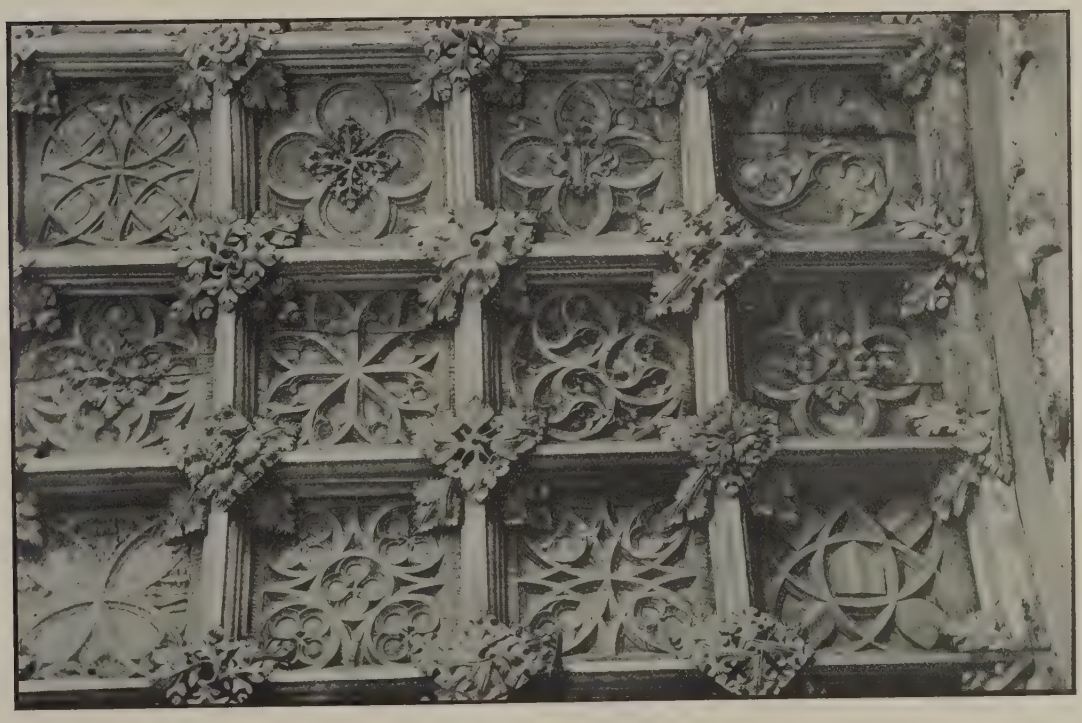
F. H. C. Hennock, Devon



F. J. A.

Shepton Mallet, Somerset



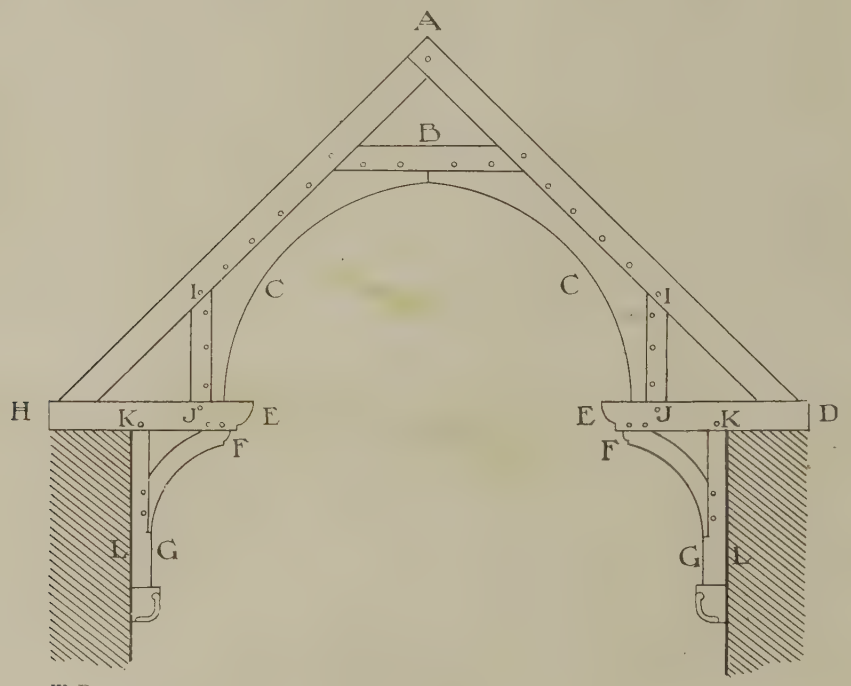


R. L. J.

Shepton Mallet

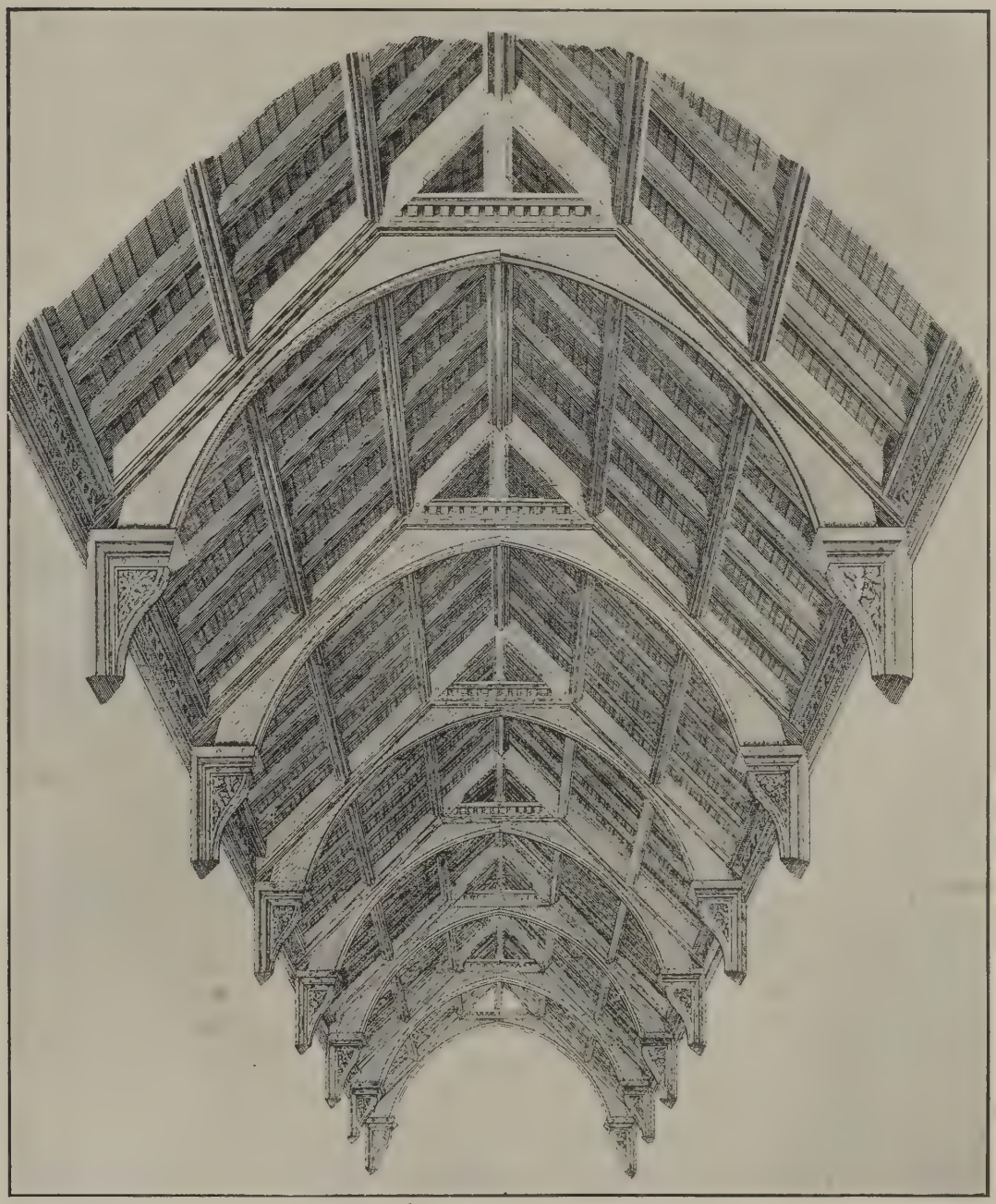
HAMMER-BEAM ROOFS

In the last group of roofs, those with arched braces and collars, and still more in those without collars, the all-important safeguard against spreading lay in the presence of the arched brace. If the latter was light and thin, then, however carefully it might be framed in and pinned, it was only suitable for comparatively narrow naves. On the other hand, if, with the principals and collar, it was very massive, as in the Worcester roof (820), then the roof became expensive, not only



W. E. Hammer-beam Roof

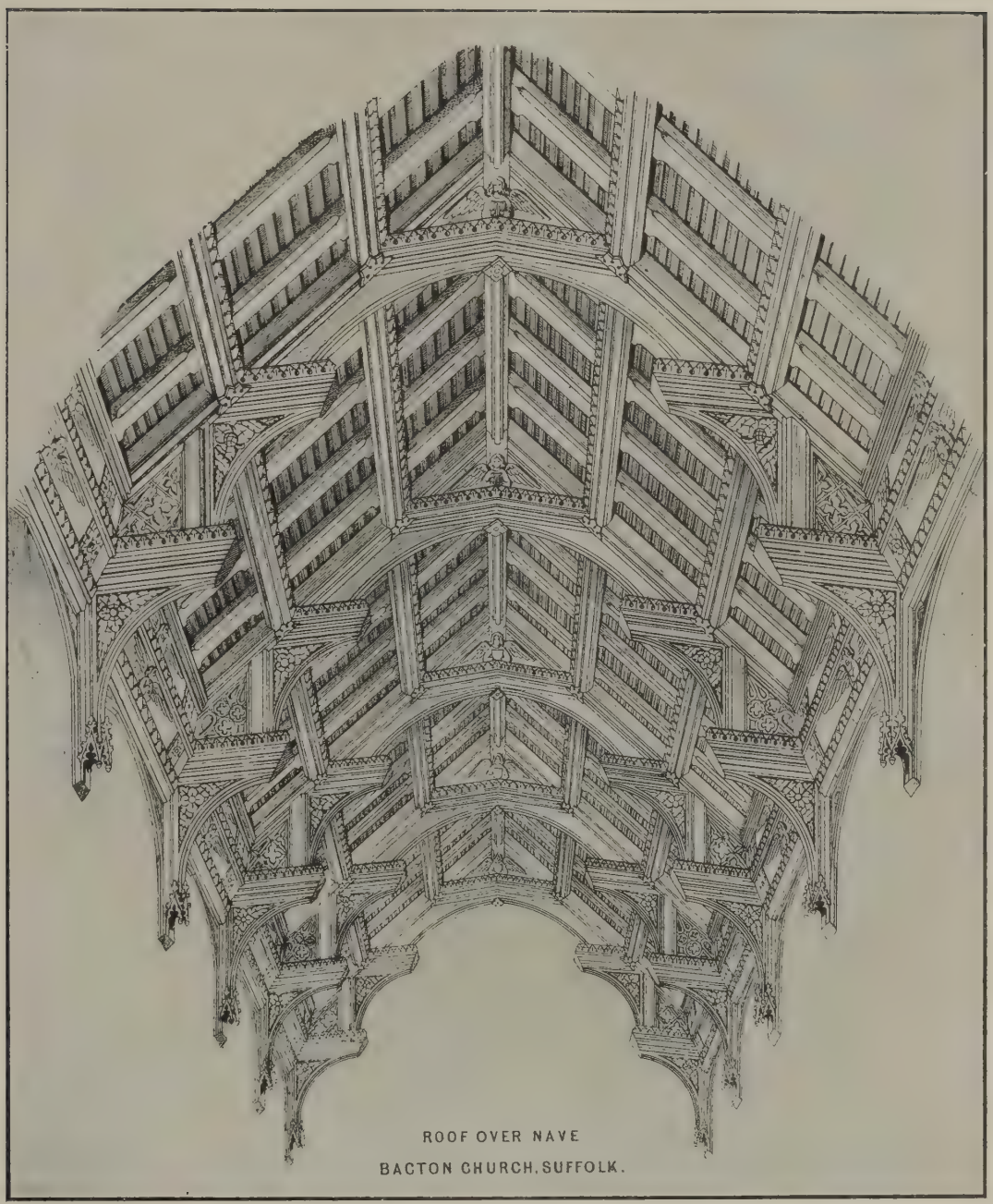
because the timbers were of large scantling, but because the walls, piers, and arches had to be built thicker to carry such excessive weight. However, in spite of this great disadvantage, the latter roof, being constructionally sound, was able to hold its own. Not so with a roof in which the arch braces were thin and light. Such a roof depended almost wholly on the pinning of the arched braces. And it was very difficult to pin them properly. If a long wall post was provided, and the arched brace was pinned to that all the way down, it was difficult to pin it to the footplate as well, especially as the latter was occupied already with the foot of the principal rafter. On the other hand, if it was pinned to the footplate, it could not be pinned to a long wall post. What was wanted was some device by which it could be



B. B. Capel St. Mary, Suffolk

B. B.

Roof over Nave, St. Stephen's Church, Norwich.



ROOF OVER NAVE
BACTON CHURCH, SUFFOLK.

pinned both to the footplate and the wall post (826). The difficulty was got over very simply and very effectively; the arched brace, instead of backing on to the roof, was brought considerably forward; and instead of trying to find room for its foot on the footplate, the latter was elongated and brought well out into the church, sometimes as much as 6 ft.[1] This elongated footplate is termed a *hammer-beam.* Into the upper surface of the hammer-beam was usually tenoned an upright strut.[2] Then the arched brace could be securely fastened to the hammer-beam, the strut, the principal rafter, and the collar beam or else the ridge beam. Beneath the end of the hammer-beam, to support it, was another curved brace springing from the foot of the wall post. All this was good construction, and the result was that very wide spans were roofed with the aid of hammer-beam and arched brace, which it would have been dangerous to attempt with arched braces alone; among them Eltham Palace, Kent; Beddington Hall, Croydon; Hampton Court Palace; Middle Temple Hall, London; the halls of Trinity College, Cambridge, and Westminster Hall, the earliest of them, which has the vast span of 68 ft. If the view stated above is correct, it follows that it is erroneous to assert that "the arched brace roof is a simplification of the hammer-beam roof"; the reverse is the case; the latter is an improved version of the arched brace roof, enabling the latter to be employed over wide spans without using timbers of excessive scantling. It is indeed hardly conceivable that the carpenters should have passed from the rafter roof or the tie-beam roof *per saltum* to the hammer-beam roof; there must have been some intermediate stage, and that is to be found in the arched brace roof.

Another supposition is that the hammer-beam roof is merely a tie-beam roof with the middle of the tie-beams cut out; this is based on the idea that because it is termed a hammer-beam roof, hammer-beams are the essential feature of it. But that is not so; they are only there to help the arched braces; the latter are the primary element; and the roof as a whole is nothing but a variant—an improved variant—of the arched brace roof.

Hammer-beam roofs are of two kinds; those with one hammer-beam and those with two. Of the single hammer-beam roofs most have collars; but a few omit them. Of hammer-beam roofs *without collars* there is a fine example at St. Stephen's,

[1] In the diagram (826) AH, AD are principal rafters, B is the collar, CC are arched braces, framed and pinned to the collar, the principal rafters, and the struts; IJ are struts, HE, DE are hammer-beams, KL are wall posts, FG are the lower braces. These lower braces are framed and pinned to the wall post KL and the hammer-beam HE or DE; the wall post KL is tenoned and pinned to the hammer-beam HE or DE; the struts IJ are also tenoned and pinned into the hammer-beam and also to the principal rafter AH or AD.

[2] Another merit of the strut was that it brought down some of the weight of the lower part of the roof on to the hammer-beam, and so, indirectly, to the foot of the wall post. The strut was sometimes omitted where the hammer-beams had little projection and there was not room for it; *e.g.*, at Capel St. Mary (827) and Palgrave, Suffolk

F. H. C.

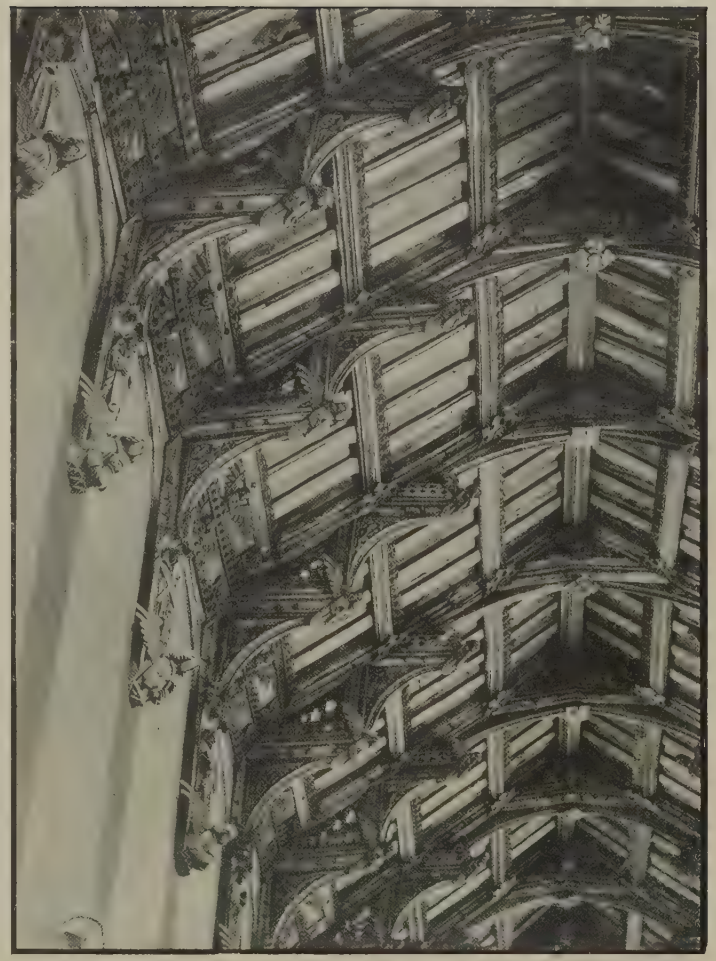
Fressingfield, Suffolk

F. H. C. West Walton, Norfolk

F. H. C. Earl Stonham, Suffolk

T. N. B. Knapton, Norfolk

G. G. B. North Creake, Norfolk



F. H. C.

Woolpit, Suffolk

Norwich,[1] which covers both nave and chancel, there being no chancel arch; there are no less than sixteen bays in this roof (828). The wall posts rest on long slender shafts framing in the clerestory windows, and the cornice and hammer-beams are richly crested; the span of the roof is 17 ft. $2\frac{1}{2}$ in.; its pitch is 50.5°. Where, as here, the collar is omitted, the arched brace assumes a much less obtuse and more graceful form, but constructionally the roof is less secure.[2]

Of single hammer-beam roofs *with collars* that at Capel St. Mary, Suffolk, is a good, plain example (827). A richer roof is seen at Fressingfield (831), and a superb example at Earl Stonham (832), both in Suffolk. At Capel St. Mary the hammer-beam has little projection, and there is no room for a strut on it. The span of the roof is 18 ft. 3 in., and its pitch 43.5°. It will be noticed that at Capel St. Mary the wall posts do not rest on corbels; at Ixworth (803) they end in corbels but the corbels are not fixed in the wall, but are carried by the wall posts; such wall posts are sometimes termed *pendant posts*; it is plain from these examples that the main function of the wall post is not to bring the weight of the roof lower down, but to prevent spreading. Where the wall post terminates in this abrupt way, as also at Fressingfield (831), it may be that an angel or some such figure has been sawed away by the Cromwellian iconoclasts, who greatly raged in Norfolk and Suffolk. A richer example is seen at Ixworth, Suffolk (803); here hammer-beams alternate with arched braces; at Mildenhall (803) they alternate with tie-beams. To tie a roof by means of four or five tie-beams when three were enough was no doubt felt to be a waste of good timber; in the same way, instead of providing a roof with some sixteen hammer-beams on each side, as in St. Stephen's, Norwich, it made a pleasant variation to omit every other one.

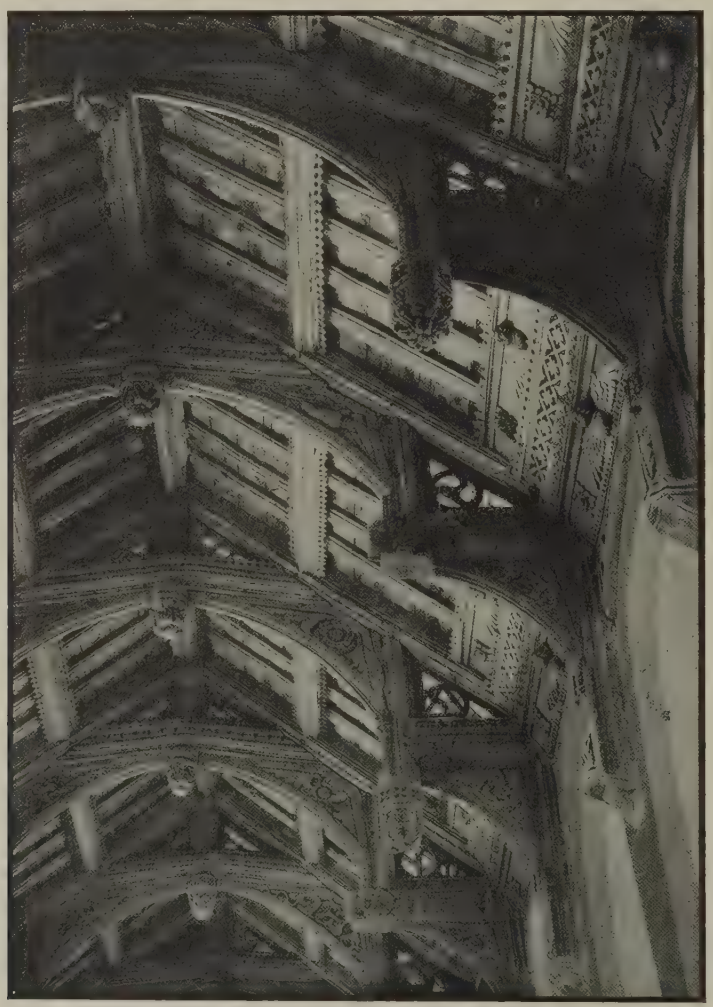
Where the span was unusually great, and even where it was not, a *double* hammer-beam roof was often employed. In this case the end of the upper hammer-beam is supported by an arched brace framed into the strut of the lower hammer-beam, the principal rafter and the undersurface of the upper hammer-beam. The latter is tenoned into the principal rafter.[3] From the end of the upper hammer-beam arched braces rise to the collar; they are framed into the upper strut, the principal and the collar. Such a roof, therefore, possesses two arched braces instead of one. The philosophy of the matter is simply that two narrow half-arches are stronger than a single wide one. The roof over the unaisled nave of Knapton, Norfolk

[1] The nave of this church was built between 1547 and 1550.

[2] Illustrations of other single hammer-beam roofs without collars are: Trunch, Norfolk, in Brandon's *Roofs*, Plate 19; Worstead, Norfolk, in Colling's *Details of Gothic Architecture*, Plate 52; other good examples will be found at Cawston and East Harling, and Burnham Thorpe, Norfolk, Nelson's church. In the last the cornices are exceptionally large and rich, and between the wall posts are four-centred braces. Here there is omitted not only the collar but the upper parts of the arched braces; it is only by the wall posts that the roof is kept from spreading.

[3] On the other hand, the principal rafter and strut are tenoned into the *lower* hammer-beam.

(833), has a span of 30 ft. 6 in.; at Bacton, Suffolk (829), the span is only 19 ft. 4 in.; in the latter, as so often, the angels have been sawn off. Many of these noble roofs remain in Norfolk; Knapton, retaining nearly all its original colour; Swaffham and Tilney All Saints (837), in Norfolk; March, Cambridgeshire; Great



F. H. C. Earl Stonham, Suffolk

Bromley, Essex; still more remain in Suffolk; Bedingfield, Grundisburgh, St. Margaret's, Ipswich, Rattlesden, Weatherden, Earl Stonham (832), Fressingfield (831), Woolpit (834), Worlingworth (838) may be mentioned. Here and there fine hammer-beam roofs will be found in the West of England; there is a delightful

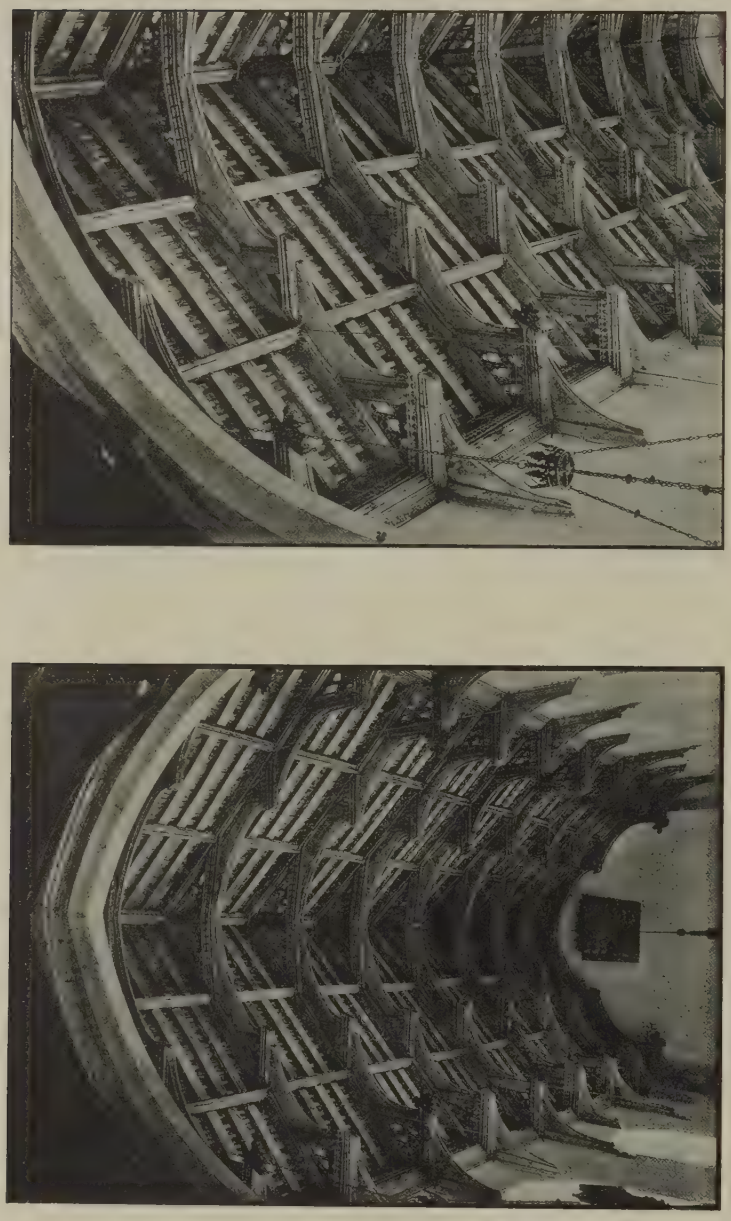
one in Weir Gifford Hall, Devon.[1] In Shropshire there are good examples, some double, at Bridgnorth, Donington, High Ercal, Shifnal and Condover; the last is *temp.* Charles II.

It has been said that every hammer-beam roof has arched braces. There is a

F. H. C. Tilney All Saints, Norfolk

remarkable exception in the broad unaisled chapel of Needham Market, Suffolk. All other roofs of clerestoried naves are erected above the clerestory; but in this extraordinary example the clerestory is inserted in the upper part of the roof. If it

[1] Illustrated in *Transactions* of the Exeter Diocesan Architectural Society, I., vi. 14.



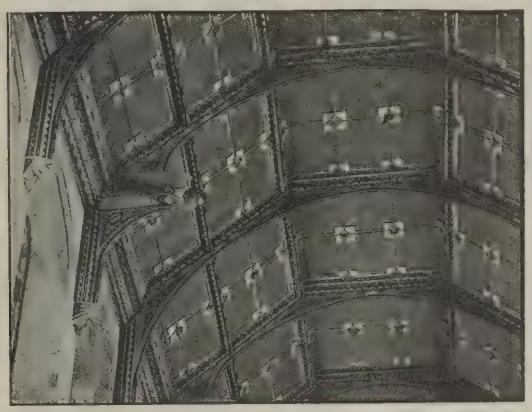
Worlingworth, Suffolk

F. H. C.

can be described at all, it is a hammer-beam roof with collar beams which are supported by struts resting on hammer-beams, and with windows placed as if they were dormers. The first sight of it quite takes one's breath away; it seems hitherto to have escaped notice (840). The heavy and rather unsightly roof at Bere Regis, Dorset, pretends to be a hammer-beam roof, but is nothing of the sort; the horizontal beams projecting at right angles to the wall are not hammer-beams, for they are not elongated footplates; it is really a tie-beam roof with arched braces strutted low down (806).

MISCELLANEOUS ROOFS

Such then are the main types of mediæval roof in England; they held their own well into the seventeenth century. They fall, as has been pointed out, into three main divisions; but there is no hard and fast division between the different types; whenever it suited their convenience the builders had no compunction in hybridising the types, mixing up tie-beam and trussed rafter roofs, tie-beam and arch-braced roofs, tie-beam and hammer-beam roofs, hammer-beam roofs and arched brace roofs.



W. D. Southwold Chancel, Suffolk

Exceptional forms also occur. In the old palace of the Archbishops of Canterbury at Mayfield, Sussex, the principal rafters of the hall roof are constructed not of wood but of stone; the suggested construction of the woodwork is that of Mr G. E. Street (845). Mr Bidlake's church at Sparkbrook, Birmingham, employs stone principals, *i.e.*, transverse arches of stone spanning the nave, very effectively.

A small group of roofs apparently owes its inspiration to the chancel screen. The latter was usually either coved or vaulted in wood at the top to provide support for a broad platform or loft. So also the roof of Hingham, Norfolk,[1] was coved on either side, and the rich cornice was in the plane of the upper edge of the coving. At St. Peter Mancroft, Norwich, the design commences with a ribbed vault; then comes a rich cornice, and from that springs an arched brace roof. The nave roof at Framlingham, Suffolk, is of similar character; the object of the design is apparently to reduce the span of the arched brace roof (844).

A good many roofs were boarded over; *i.e.*, had ceilings. At Nutfield, Surrey,

[1] As illustrated in Brandon's *Parish Churches*, 41: this remarkable roof was destroyed at a recent "restoration."

the trussed rafter roof of the chancel is ceiled (795). At Southwold the roof of the chancel has alternately hammer-beams and arched braces, and is ceiled (839). At Barnwood, Gloucester, the nave has a ceiling resting on four-centred arches; it is independent of the roof above.[1] Flat molded ceilings remain at Lavenham, Sudbury, and elsewhere. By far the most elaborate ceiling we possess is that

F. B. Needham Market, Suffolk

of the nave of St. David's cathedral, suspended from the roof above; it may be due to Owen Pole (1472-1509) (841). All roofs of the type of that of Shepton Mallet are ceiled.

Some of the Greater churches had not the money or had not the skill or the courage to ceil their roofs in stone, *i.e.*, to vault them; but put up sham vaults in wood; *e.g.*, the whole of the high roofs of York minster, including the Chapter house;

[1] Illustrated in Brandon's *Parish Churches*, 71.

the chancels of Winchester and Selby; the Lady chapel, choir, and retro-choir of St. Albans; the cloister of Lincoln minster; the towers of Exeter and Winchester.

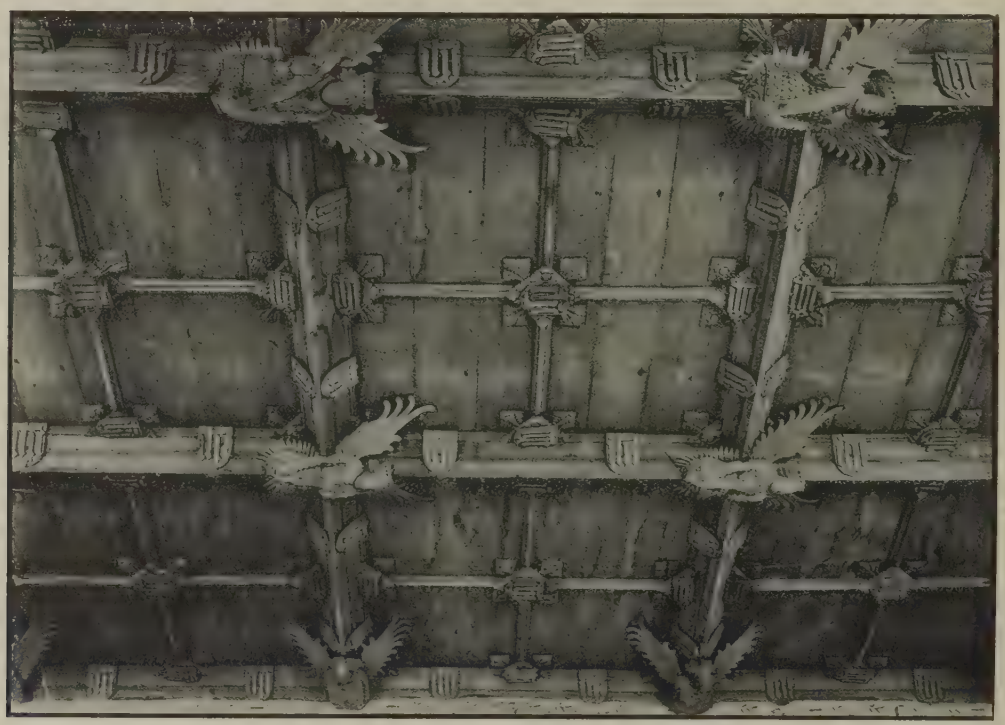
J. L. St. David's Cathedral

Wooden vaults are very rare in parish churches; but a fine one remains in the nave of Warmington, Northants.

Aisle roofs are naturally constructed as lean-tos in the great majority of instances; *e.g.*, at Barking, Suffolk (813). But if the width of the aisle is considerable, it may

have a span or gable roof; if so, care is generally taken to keep it low, so as not to obstruct the clerestory. Aisle roofs may have tie-beams, as at Woolpit (812); or may be arch-braced, as at Outwell, Norfolk;[1] rarely is there a hammer-beam roof, as at Hingham and Wymondham, Norfolk: the roof of the north aisle of the latter is truly magnificent.

As will have been seen, the slope or pitch of the roofs varied greatly. Where much snow falls, the roofs may be very sharply pitched, as in the timber churches



F. H. C. Ewelme, Oxon.

of Norway; on the other hand the farmhouses and chalets of Norway and Switzerland sometimes have roofs of low pitch, preferring to have the cold air kept out by a thick snow blanket, the weight of which is provided against by increasing the scantling of the timbers. The increased use of lead had more to do than anything else with lowering the pitch of the roofs. With a covering of tiles or thatch, the roof had necessarily to be of steep pitch; but, with lead, it could be nearly flat, if desired. We may say that we began in Norman times with a

[1] Brandon's *Roofs*, Plate 23.

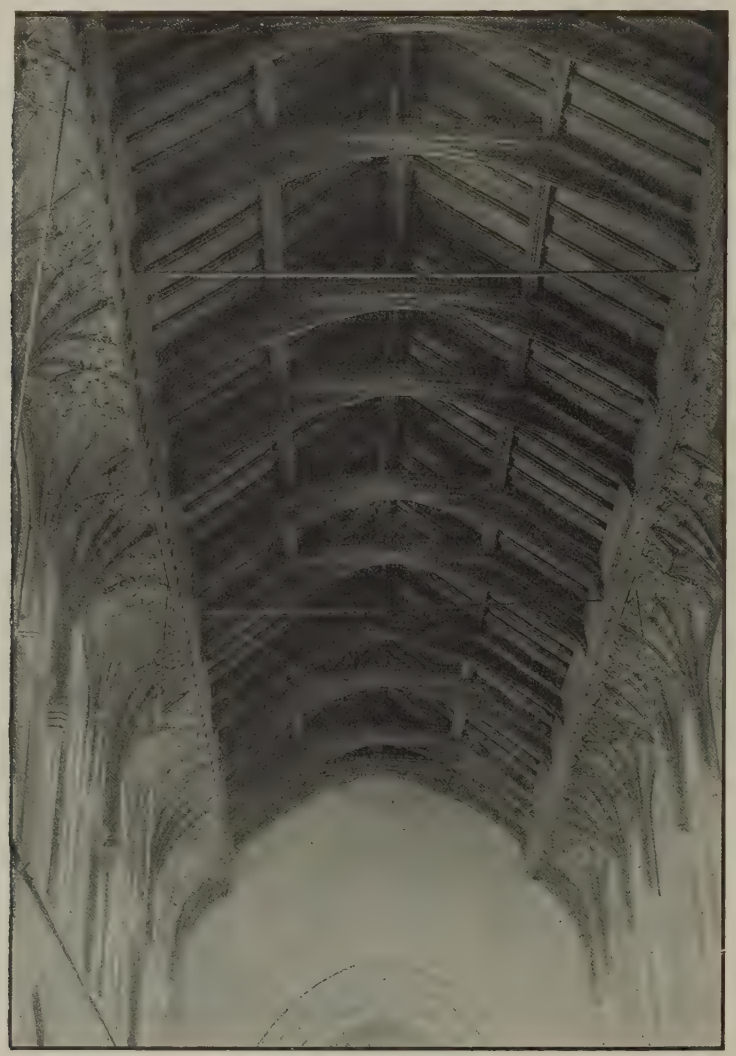
pitch of about 45°; and that in the thirteenth century there was a tendency here and there to greater steepness, *e.g.*, in Lincoln minster. Effective as is the silhouette of steep roofs against the sky-line, yet they swallow up much more

F. H. C. Ewelme, Oxon.

timber and add greatly to the weight that falls on the clerestory walls. So, though roofs of a fairly steep pitch never went out of use, there was an increasing tendency to flatten them; a tendency strengthened by the design of roofs like that at Lavenham (808), in which the slope of the roof was

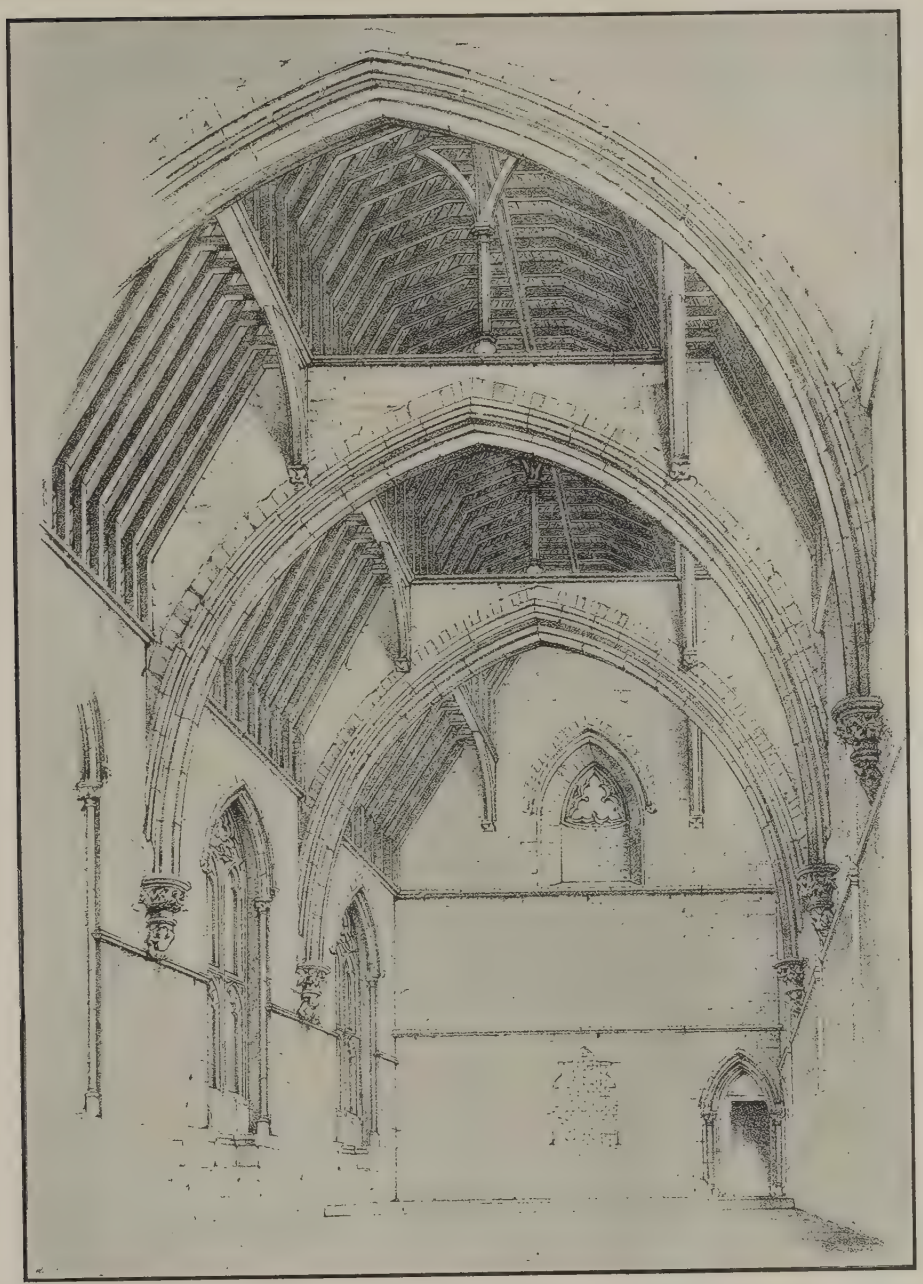
conditioned by the camber of the tie-beam. An early example of low pitch is the roof over the south aisle of St. Martin's, Leicester (818).

In England the material of the roofs was always oak; never chestnut. The



G. G. B. Framlingham, Suffolk

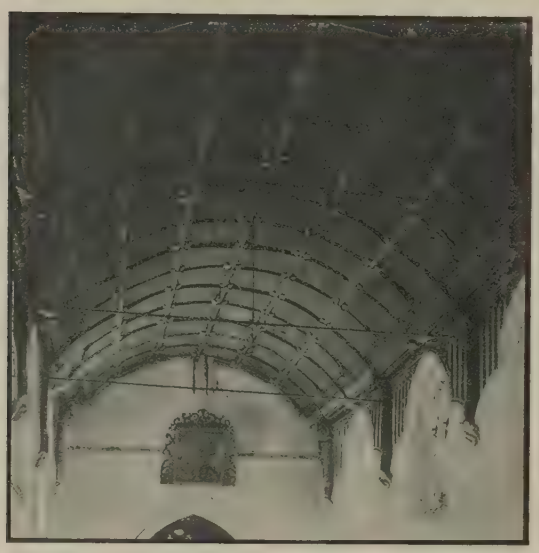
subject has been carefully investigated by Mr Thomas Blashill and by Mr Harry Hems, who in ecclesiastical woodwork have only met with chestnut once; viz., in the screens of Rodmersham church, Kent. The timber of one variety of oak, the sessile-pointed,



G. E. S. Mayfield Palace, Sussex

is so much like chestnut as easily to be mistaken for it.[1] The wood was thoroughly seasoned before use, and the roof timbers were well ventilated. The carpenter did not want and would not have permitted the help of the blacksmith; he refused to use iron nails, bolts, ties, or straps; with mortice and tenon and wooden pegs he could frame any roof, however large and however complicated; where reasonable care has been taken of them, they remain as sound as ever. The ancient oak roofs rank among the highest triumphs of mediæval architecture and English genius.

[1] See Selby on *British Forest Trees*.



W. M. Banwell, Somerset

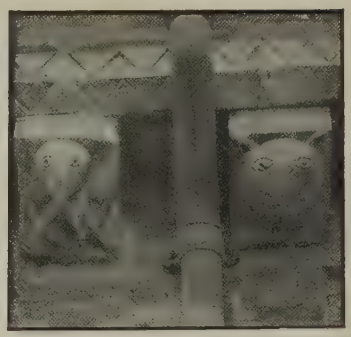
SECTION II.—DRIPPING EAVES, GARGOYLES, PARAPETS, AND BATTLEMENTS

DRIPPING EAVES AND CORBEL TABLES

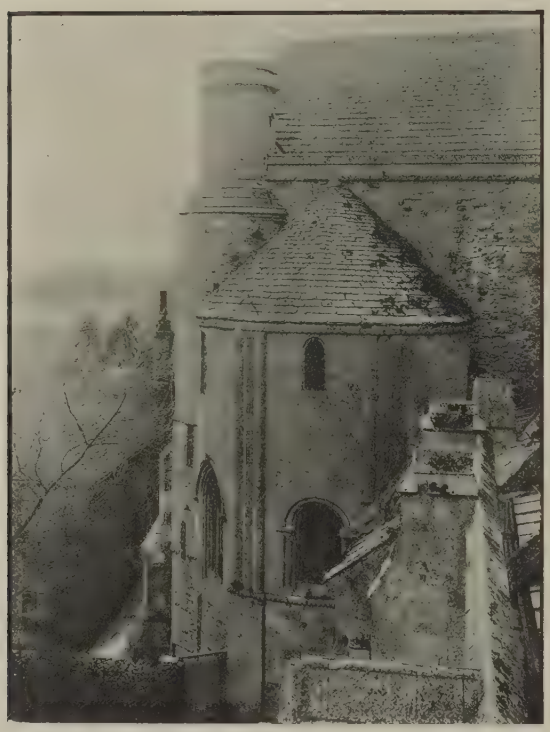
Next to protection from fire, which in the Greater churches, though not in all of them, was provided by inserting beneath the roofs a ceiling of stone, *i.e.*, a vault, a chief preoccupation of the builders was how to protect their work from rain, damp, and frost. The simplest and earliest method is seen in many a cottage, barn, and church of Norfolk, where a thatch of straw or reeds projects well beyond the wall in what are called *dripping eaves*, *e.g.*, at Middleton, Suffolk (662), and Heckingham, Norfolk (180). Even when the roof was covered with lead, the same method was often retained in use in quite late days in the fen districts, *e.g.*, at Wisbech; the rafters being made to project well over the walls, and the sheets of lead farther still (856). Occasionally, when lead was not used, the roofs still had dripping eaves, *e.g.*, at Burnham Norton (884). Even when tiles or stone slates were employed, *e.g.*, in the transept apse at Christchurch, the walls originally had dripping eaves (848). This was so in most of the cathedrals and Greater churches till well into the thirteenth century, and sometimes much later. To get the tiles or slates as far as possible beyond the wall face, it was usual to build the upper course or courses of the walls in projection, and these projecting courses were supported by blocks of stone inserted in the wall, termed *corbels*. Such a projecting course with its supporting corbels is styled a *corbel table*. Sometimes the corbels are left square; or they are molded, as at Ripon (782); sometimes they have characteristic ornament, such as the billet, zigzag, beaded fret (Barfreston, 179); often they are hideous masks of men or monsters, as at Kilpeck (848). Sometimes the table is not carried by corbels but by diminutive arches, such as the *nebule* corbel table at Peterborough (138); in the thirteenth century the arches are pointed or trefoiled, *e.g.*, in the façade (440) and retro-choir (574) of

Warmington, Northants

J. H. P.. Stanwick, Northants



G. G. B. Kilpeck, Hereford



E. G. Christchurch : Apse of S. Transept

G. G. B. Walpole St. Peter, Norfolk

Ely, the aisles of the retro-choir at Lincoln (784), Warmington, and the tower of Stanwick, Northants (847).

GUTTERS, GARGOYLES, PARAPETS, BATTLEMENTS

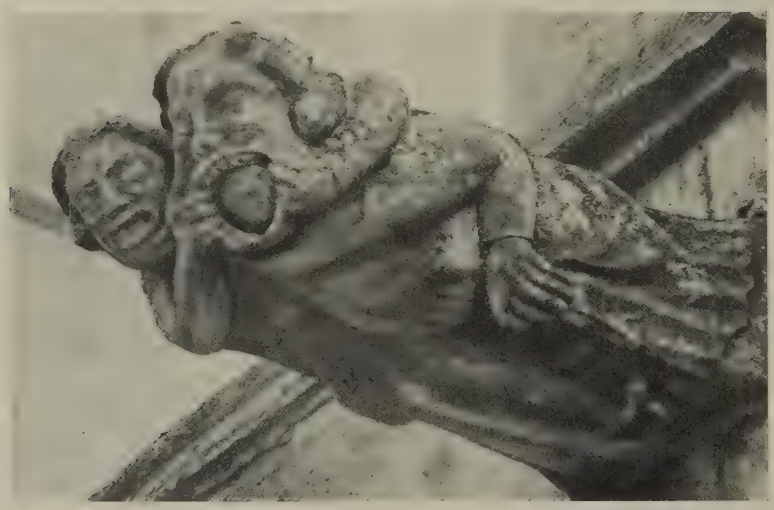
This system of dripping eaves was, however, objectionable. The eaves could not be made to project very far, and with a strong wind blowing towards the wall, much of the rain falling from them must have been dashed against walls, windows, and doorways. And unless the aisle roofs were covered with lead, which many country churches could not afford, the rain falling from the eaves of a lofty clerestory would in time damage the aisle roofs below. Moreover, if repairs were needed to the main roof of an aisled church, it could not be reached except by erecting scaffolding from the ground at heavy expense. This was recognised at Ely by the end of the eleventh century, and for dripping eaves was substituted a system of gutter, gargoyle, and parapet (573). This system remained in use till the end of Gothic architecture; stone spouts were tried here and there, *e.g.*, at Furness abbey and Kettering church, but their liability to be choked kept them out of use till modern days, when spouts could be cast in iron. The gutter system,[1] minus the gargoyles, is seen in the illustrations of Walpole

[1] In the gutter it is usual to place a frame on which the workmen can tread, as the gutter is often wet and slippery; this frame is shewn in the illustration (848).

S. S. Lincoln Minster

H. E. I. Blyth, Notts.

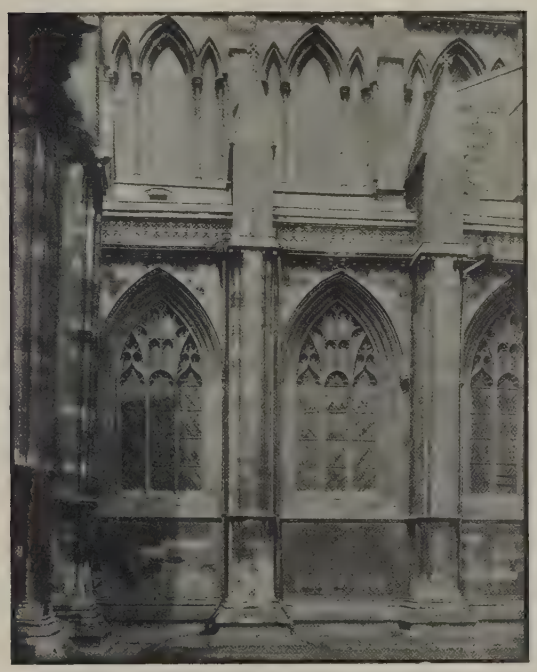
H. E. I. Blyth, Notts.



C. G. Patrington, Yorkshire

St. Peter and Christchurch choir. The parapet prevents the rain from escaping over the edge of the wall; it also safeguards workmen passing along the gutter or at work on the roofs; and against its foot ladders can be reared safely. The spire passed through a similar transformation, as will be shewn later; for the broach spire with dripping eaves being substituted the spire with path all round guarded by parapets.

At intervals the parapet was pierced with a hole, and in this was inserted a perforated block, projecting sometimes 3 or 4 ft., through which the contents of the



F. B. Beverley Minster: Choir

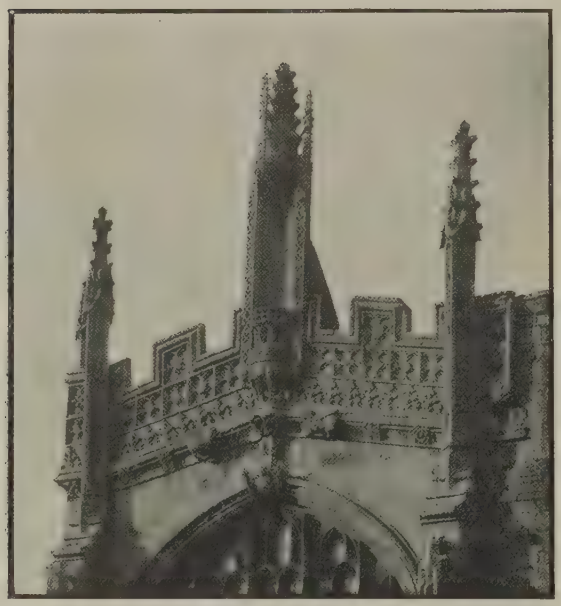
F. B. Beverley Minster: Back of Reredos

gutter found their way to the ground; this perforated block is termed a *gargoyle* or *gurgoyle*, which is a diminutive of the French *gorge*, the throat. The gargoyles were carved into all sorts of fantastic forms, especially masks and monsters; *e.g.*, at Lincoln, Blyth, and Patrington. In France, lead being scarce and expensive, as a rule the gutters were designed to dispense with it, and were of more elaborate character than those of England;[1] we found it sufficient to cover the sides and bottom of the gutter with a sheet of lead.

One of the most objectionable features in the gutter and parapet system was

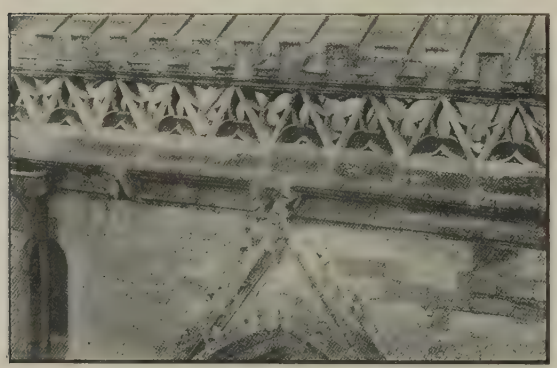
[1] A French gutter is described and illustrated in *Gothic Architecture in England*, 393.

that the concentrated discharge from the gargoyles of a clerestory fell from a considerable height on to one particular part of the covering of the aisle roof, and might find its way there into the aisle roof and vault; besides, it would splash and damage the lower part of the clerestory wall. On the north side of the naves of Chichester and Lichfield the back of the flying buttress was therefore channelled to convey the drainage from the gutter of the clerestory to that of the aisle (409). In the lofty churches of France, where superposed flying buttresses were common, the upper one was often utilised in the same way as an aqueduct.



W. M. Devizes: St. John

In the earliest examples, *e.g.*, the Norman aisle of Ely (573), the parapet rested, as had done the dripping eaves of thatch, tile, slates, or lead, on a corbel table. Sometimes the new was substituted for the old system of roof drainage, the old corbel table being retained, but the wall above it heightened so as to form a parapet; this is well seen in the choirs of Beverley and Wells and the nave of Lincoln. At Beverley[1] there remains the thirteenth-century table containing a band of diminutive tooth ornament; above it, in the following century, was superposed a molded parapet containing two bands of foliated diaper (851). In Wells choir molded corbels carry a plain parapet of *c.* 1190, which is capped with a fourteenth-century ballflower cornice and a parapet perforated with geometrical tracery (22). In Lincoln nave a rich fourteenth-century parapet was added in the fourteenth century (51). Sometimes the parapet was flush with the wall, as at Chichester (577); more often it projected beyond, so as to provide a broader gutter and pathway. Its upper

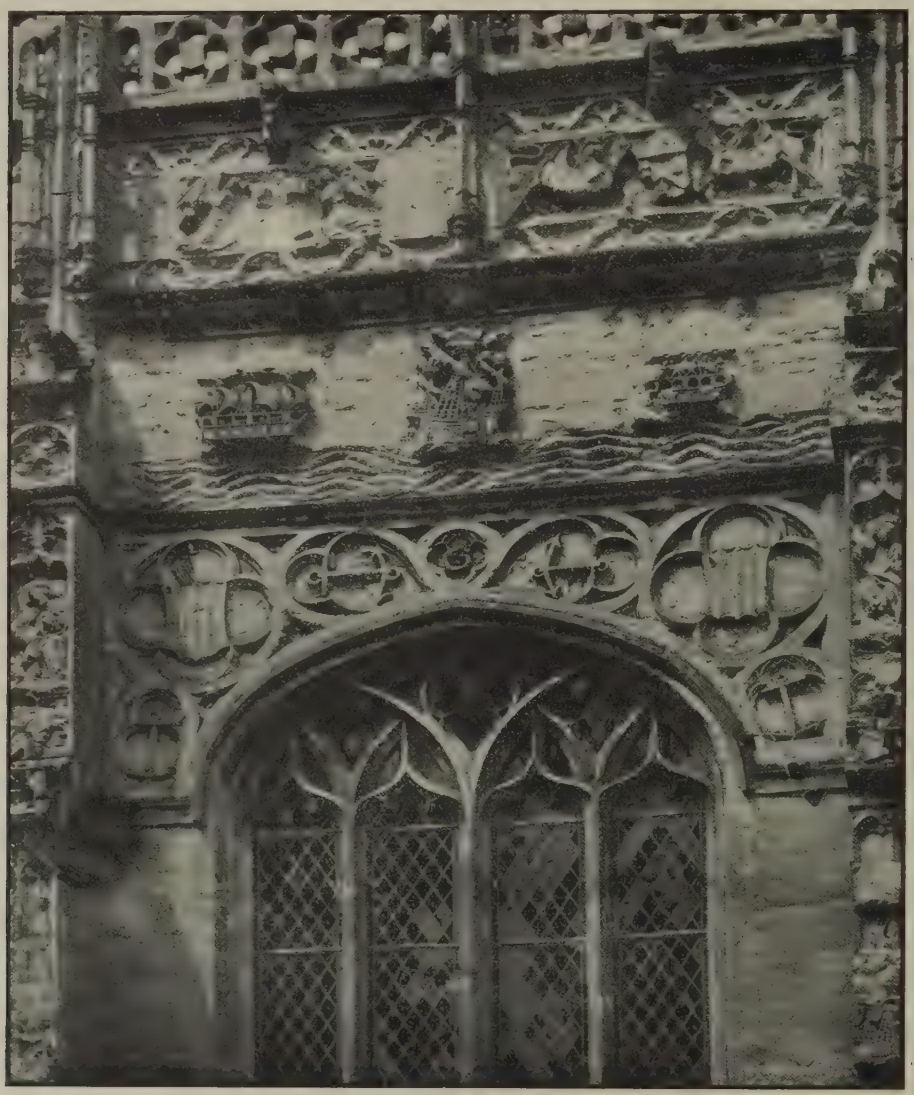


W. G. B. Tewkesbury Chancel

[1] Illustrated in *Gothic Architecture in England*, 386.

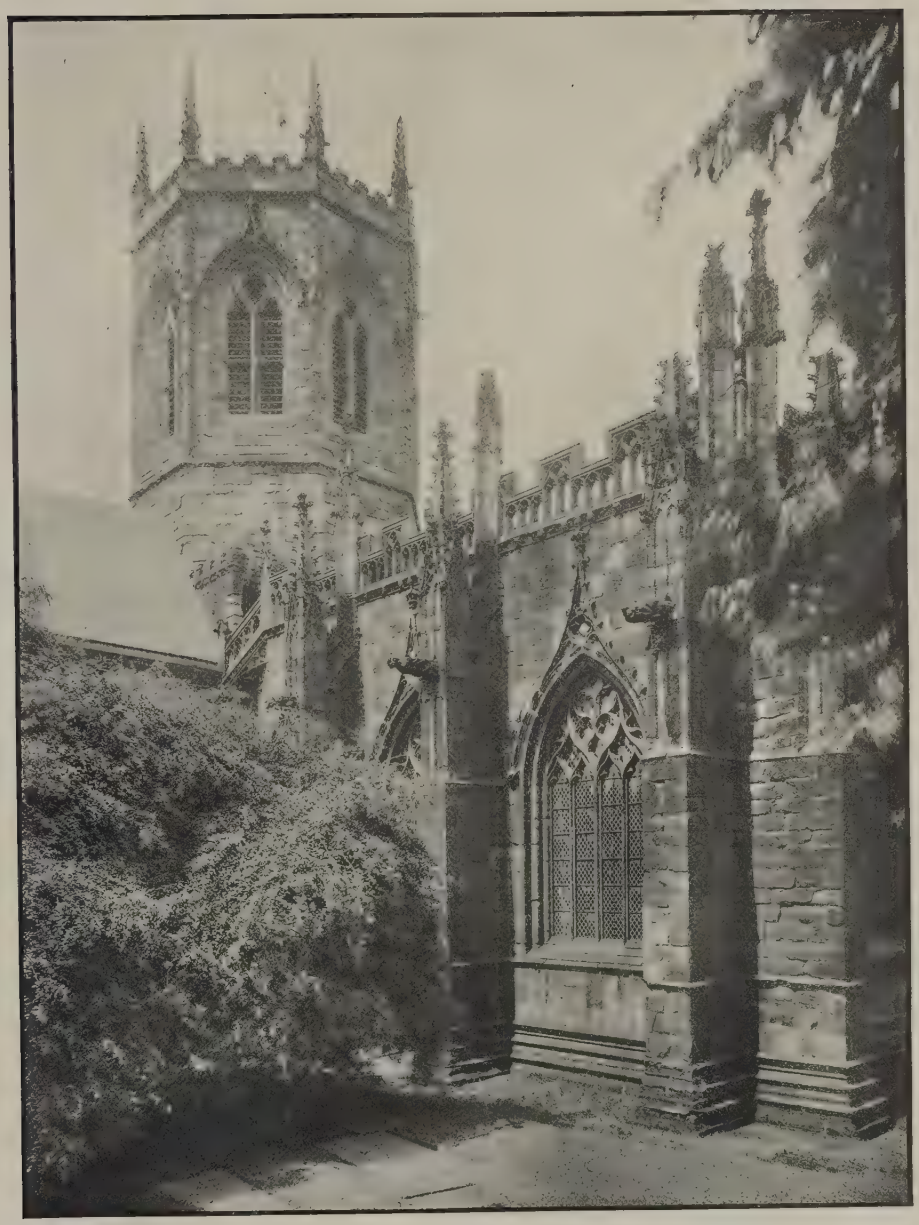
F. H. C. Beverley St. Mary: West Front

edge was either molded or battlemented, its lower edge formed a molded string, and beneath this string was usually a hollow. This hollow, sheltered by the string, was



F. B. Tiverton, Devon

seized upon as a field for sculpture; and in it were set ballflower, square-leaved flowers, masks, grotesques, or the like; *e.g.*, Over (646), Beverley reredos (851), Lichfield nave (785), Ely choir (575), Winchester nave (786).



F. H. C. Nantwich from South-east

On the north side of Chichester nave,[1] as originally built, the wall was capped with a nebule corbel table; when the walls were heightened and vaulted after the fire of 1186, a second table of the same design was superposed (577).

The choir of Canterbury and the retro-choir of Lincoln have parapets of lead; the latter is decorated with foliated circles (784). In Norfolk fine examples occur of parapets panelled in flint, *e.g.*, St. Michael Coslany, Norwich (423).

B. N. Wisbech, Cambs.

Parapets occur inside the building also, *e.g.*, to protect the unguarded path in front of a clerestory window; they are particularly prominent at Exeter (759). In monuments, screens, stalls, and the like, the parapet design was usually rich and elaborate; *e.g.*, on the back of Beverley reredos (851)[2] and in Sugar's chapel at Wells (107).

Externally the parapet rewarded design more than almost any feature of the building, for it was silhouetted against the sky. But this was hardly recognised till the fourteenth century. From that time great success was obtained with the design of parapets, either carved in the solid or perforated. Rich examples are seen at Ilminster (872) and Gaddesby (460). It is curious that in England parapet design was frequently retrogressive. It is true that in the Beverley reredos (851) and Selby chancel (643) we see the undulatory curve general in work of the second quarter of the fourteenth century; but geometrical tracery also is very common in the pierced parapets of the fourteenth, fifteenth, and sixteenth centuries; *e.g.*, in Tewkesbury choir (852) and the chantry chapel of Tiverton church, Devon (854).[3]

[1] Gutter and parapet are shewn in the section of Chichester nave (409).

[2] *Cf.* the parapet of the aisles of St. Mary, Beverley (853).

[3] This chantry was founded by John Greenway, a merchant of Tiverton, in 1517. Beneath the pierced parapet are twenty representations of scenes of Our Lord's life. Below are John Greenway's ships and pinnaces sailing over the waves; in the window spandrels are merchant adventurers' and drapers' arms. Similar designs occur outside Lane's chantry at Cullompton, Devon.

Very fine is the effect against the sky when a perforated parapet is set on a gable; *e.g.*, Louth chancel[1] and the south transept of Lincoln minster;[2] the pierced parapet of the central tower of Lincoln was designed by James Essex early in the eighteenth century and is very effective (148).

The most common form of parapet, however, especially in village churches and towers, was that with a battlement. In military architecture it had a practical purpose; an archer defending a wall or a tower could stand behind the merlon and fire through the embrasure; or the merlon itself might be perforated with an arrow slit, splayed outwardly; such slits, splay and all, sometimes occur in ecclesiastical architecture also; *e.g.*, in the tower of Oundle. At first only the tops of the merlon and embrasure were molded, *i.e.*, were given a *coping*, to throw off the wet; afterwards the sides also were often molded. These battlemented parapets were repeated with wearisome iteration all over the country; sometimes plain, sometimes panelled, sometimes perforated, as at Walpole St. Peter (661), Devizes (852), and Nantwich (855). Richest of all are the combined parapets and battlements of the Somerset towers, *e.g.*, Dundry (910), St. Mary Magdalen, Taunton,[3] and North Petherton, Somerset (908). In Norfolk stepped battlements are common; *e.g.*, Wisbech (856), Cambs.

Stops

[1] Illustrated in *Gothic Architecture in England.*

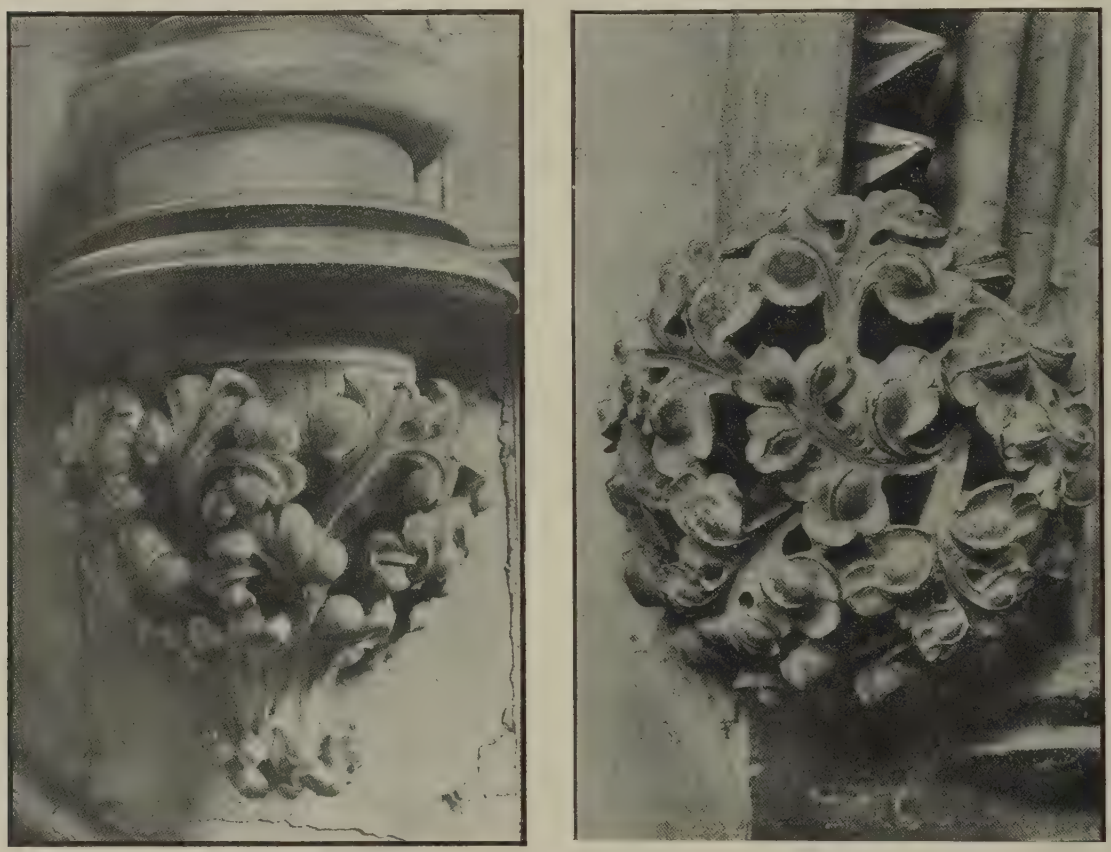
[2] Illustrations, with details, of the parapets of Fountains, Netley, St. Mary, York; Bridlington, Beverley minster, St. Mary, Scarboro'; Warmington, St. Mary Redcliffe; St. Erasmus, Westminster; New College, Oxford; Bishopstone, Lavenham, Heckington, and Winchelsea are given in *Gothic Architecture in England*, pp. 385-388.

[3] Illustrated in *Gothic Architecture in England*, 607.

SECTION III.—DRIPSTONES, STRING-COURSES, GROUND-COURSES

DRIPSTONES, STOPS, CORBELS

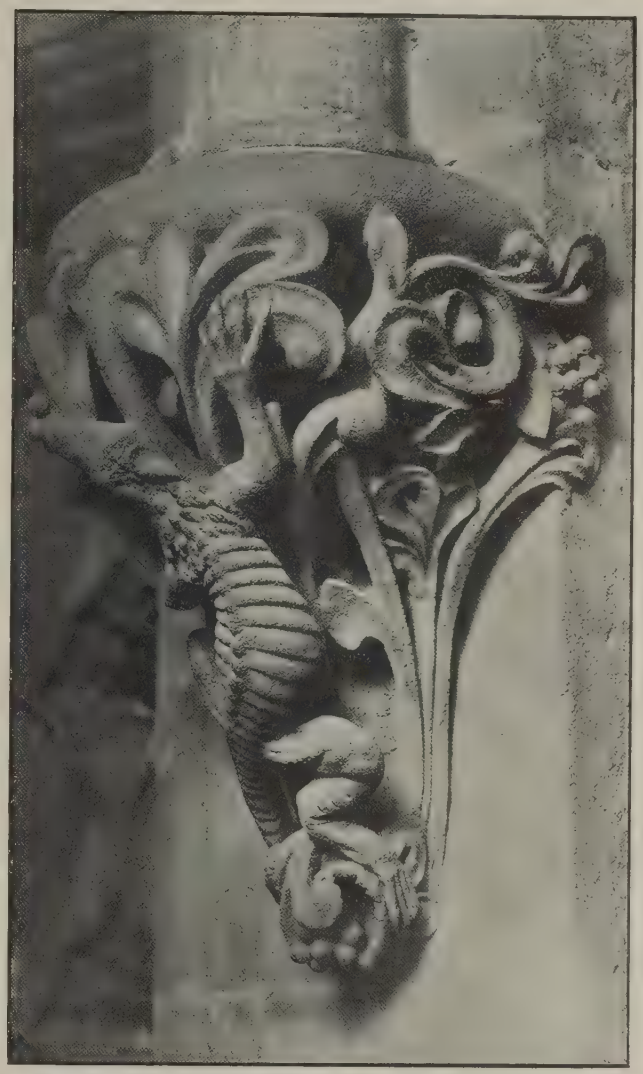
We have seen how the drainage of the roofs was got rid of; but a driving rain against the walls might do considerable damage, especially to the carved work of



S. S. Lincoln Minster

a doorway and the glazing of a window. It was usual, therefore, to protect windows and doorways with a course overhanging, as the eyebrows do the eye. This overhanging course is termed a *dripstone*, *water-table* or *weather-mold*. Sometimes the dripstone is ornamented, especially in Norman work; more often it is merely molded. In form it varies, of course, at different periods; but on the whole its development is

similar to that of the abacus (p. 540) and will not here be treated separately.[1] In shape the dripstone usually follows that of the arch of window or doorway; but in the first half of the fourteenth century, when the ogee arch was in greatest vogue, and occasionally in later times, even pointed windows were sometimes surmounted with ogee dripstones; *e.g.*, at Nantwich (855). In the later churches the doorways were usually set under a rectangular dripstone;[2] the spandrels being occupied with foliage, censing angels or the like; *e.g.*, Kessingland (716).



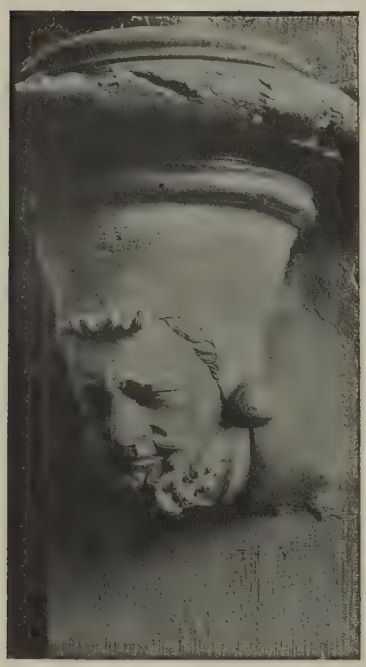
F. H. C. Wells Cathedral

Inside the church there was less need of protection against rain; but the dripstones outside the window arches so greatly improved their appearance, that they were as a rule added also to the pier-arches inside; many important churches, however, omitted them, especially in East Anglia, probably owing to the expense of getting freestone. In France the internal dripstone is rarely employed. An internal dripstone is termed a *hoodmold.*

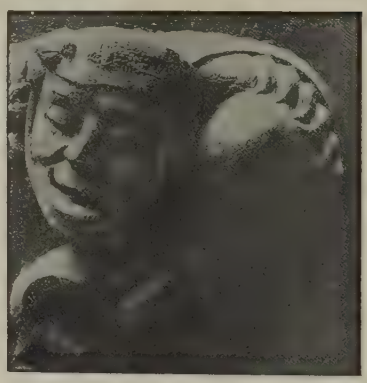
In the "*stops*" of dripstones and hoodmolds, much ingenuity was shewn; sometimes they terminate bluntly, sometimes in a spray of leafage, sometimes in a geometrical ornament, sometimes in masks, perhaps portraits of masons or villagers, sometimes in heads of a king and queen, or a king and bishop. Examples are illustrated from Ensham, Oxon.; Castor, Northants; York minster; St. Benedict, Lincoln; Lincoln

[1] For a fuller treatment see *Gothic Architecture in England*, 406 and 408.

[2] A rectangular dripstone is termed a *label*; but the term belongs rather to heraldry than to architecture.



S. S. Lincoln



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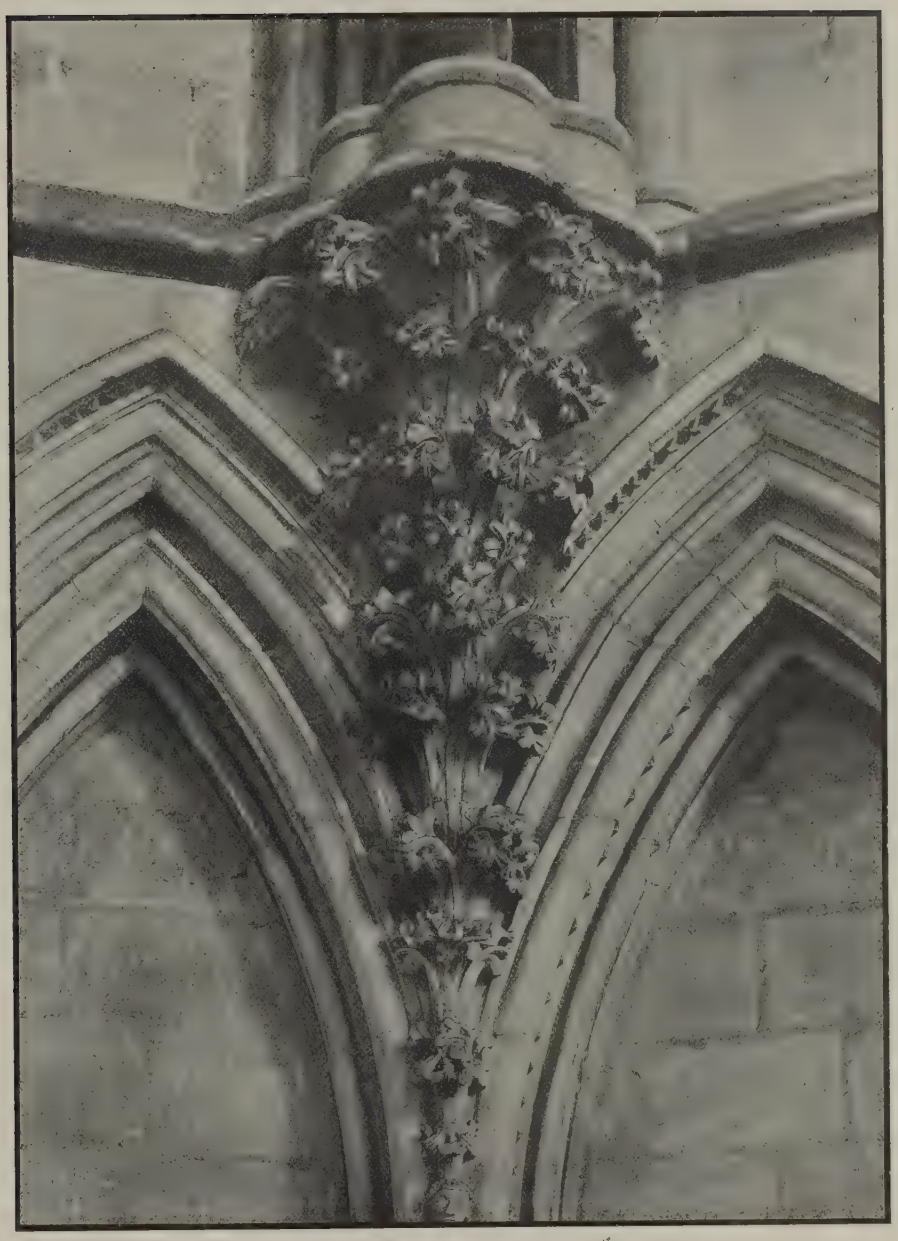
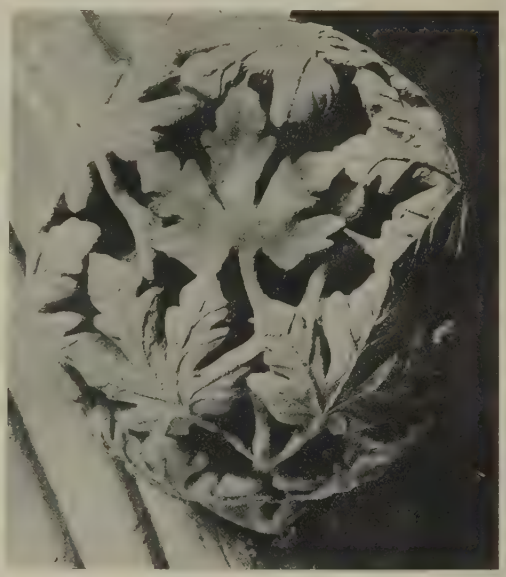


S. S. Lincoln Chapter House

retro-choir; Merton College chapel, Oxford; Rushden, Northants; Finedon, Northants (857).

Still more elaborate and beautiful design is found in corbels. That of Minster in Thanet may be *c.* 1230 (871). A remarkable example, with what looks like a lizard, is seen in the eastern aisle of the northern transept of Wells cathedral some 8 ft. from the pavement; *c.* 1200 (859). Two more foliated corbels and three corbels taking the form of masks or animals are illustrated from Lincoln, *c.* 1192–*c.* 1230. Superb are the corbels which carry the vaulting

F. H. C. Exeter Cathedral



S. S. Lincoln Minster

shafts of Lincoln Chapter house (861), which was built between 1220 and 1235; but the vault was probably an afterthought; other fine corbels of conventional foliage are seen in the retro-choirs of Lincoln (784) and Ely (574); a stop, much undercut, is shewn from the back of the Lincoln stalls (862).[1] Then come the superb foliated corbels of the vaulting shafts of Exeter (864), at the end of the thirteenth century; and *c.* 1330, those of the nave of Beverley minster (866).

[1] The example on the left of p. 862 is not a stop, but a boss of naturalistic foliage from the vault of one of the chapels of Exeter cathedral.

STRING-COURSES

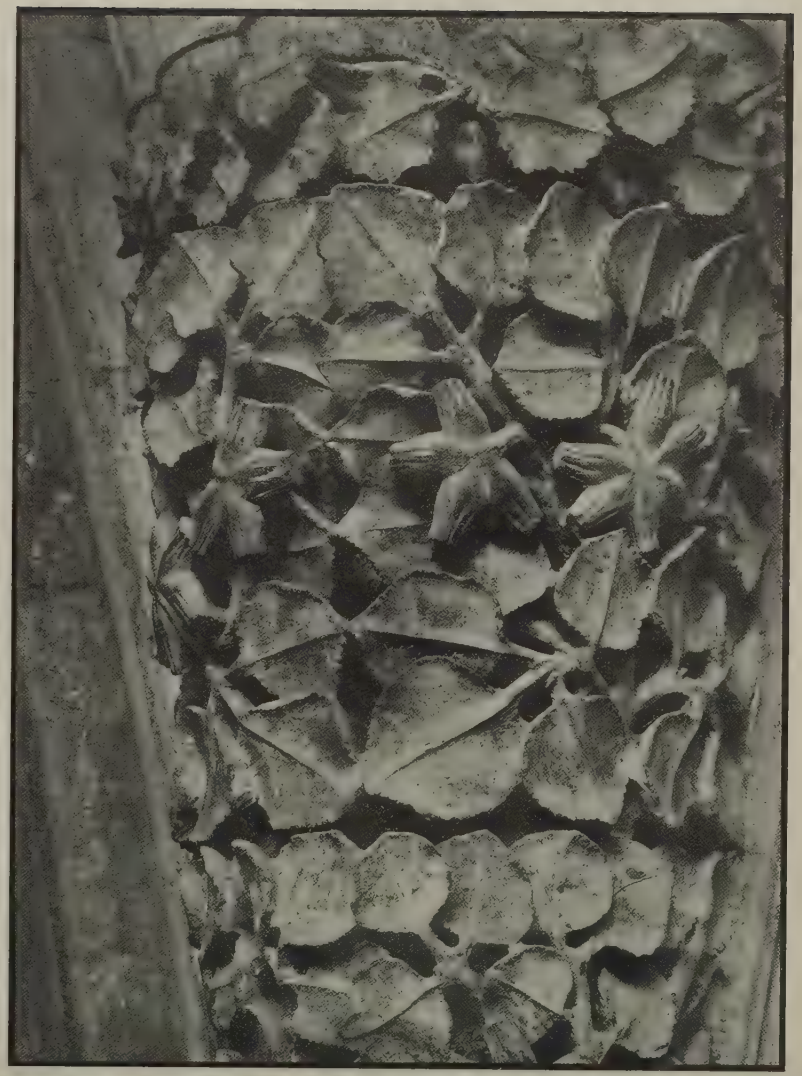
In Norman and Early Gothic the dripstones were often carried on horizontally, forming what are called *string-courses or strings.*[1] Their profiles therefore are usually similar to or identical with those of the dripstone of each period. Inside the church the string is often a continuation of the abacus, and identical with it in form; thus it comes about that the development of the form of abacus,[2] string and dripstone

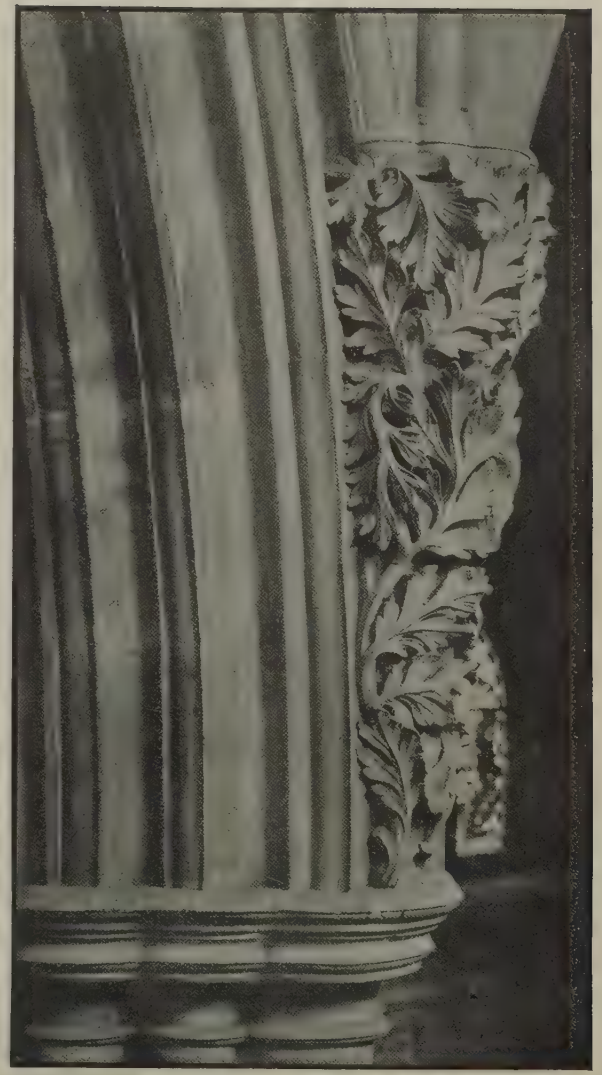
E. K. P. Exeter Presbytery

is largely identical. The characteristic Early English abacus had beneath it a hollow deeply undercut; the object of this was to obtain a deep shadow; so it was in any internal string similarly profiled; *e.g.*, at Minster (871). But in an external

[1] The string-course would be reached before the dripstone in building; so that it would perhaps be more accurate to say that a dripstone is a string carried over the head of a window or doorway.

[2] Forty-four profiles of abaci are figured in *Gothic Architecture in England*, pp. 694-689, and thirty-six of strings, pp. 680-683.





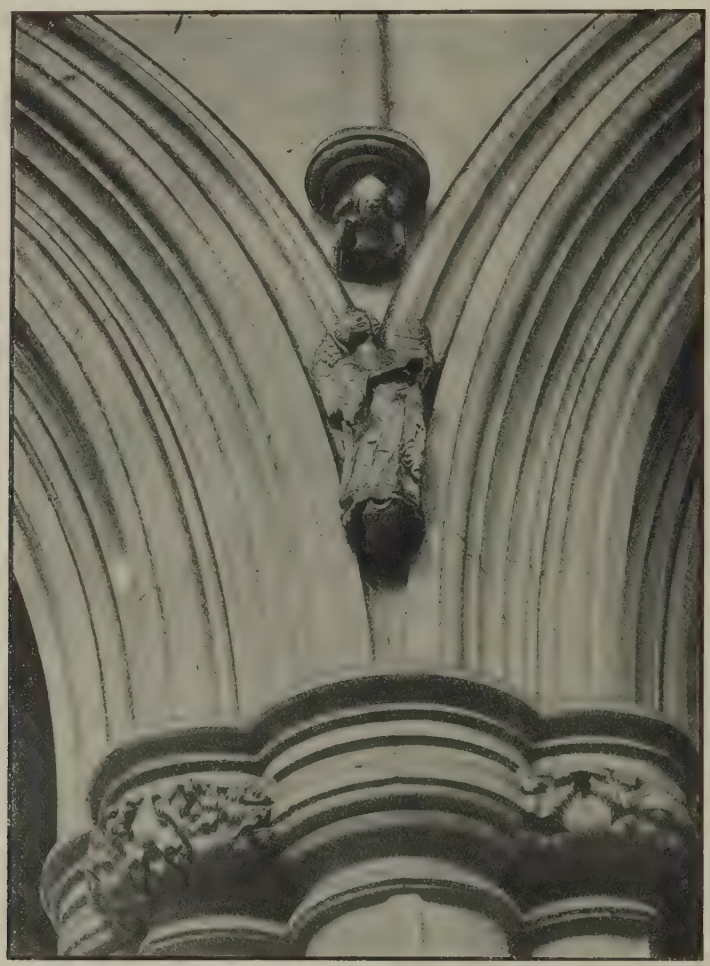
F.H.C.

Exeter Cathedral

Exeter Cathedral

F. H. C.

string so profiled (said technically to be *throated*), the hollow had another merit, viz., that it cut off the drip and prevented it from trickling down the wall immediately below. A great variety of throated strings will be found: it will also be found that the various local schools of masons had special designs of their own as regards the



F. H. C. Beverley Minster: Nave

profiling of strings, dripstones, hoodmolds and other minor members of the building. Where freestone had to be brought from a distance and where consequently the local masons were inexpert, they omitted all the minor members they could and simplified the rest; this was especially so in chalk districts. In the Sussex chancels of

Climping and Tangmere not only strings, dripstones, and ground-courses, but even buttresses are non-existent.

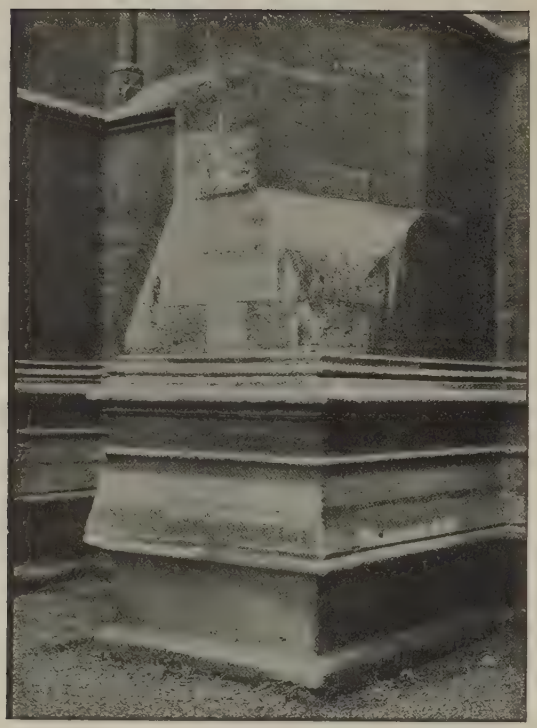
Apart from any practical use, both external and internal strings were of value in breaking the monotony of bare tracts of wall. They were therefore most in favour in Norman and Early Gothic times, while there was as yet only one small window in each bay and a large area of blank wall. But as Gothic art advanced, windows grew broader and broader, and external strings were nearly edged out of existence. Strings also were of value in demarcating decisively the stories of an interior, a tower, or a façade; in the twelfth and thirteenth centuries, when a multitude of stories was the fashion, strings were given great prominence, *e.g.*, the tower of St. Mary, Stamford (934), the western façade of Ely (440), and the transeptal façades of Winchester (568), Peterborough (569), and Beverley (66). But here also, with the reduction of the vertical stories to three, the string lost much of its importance. In an interior its chief value was to demarcate the pier-arcade from the triforium arcade, and that again from the clerestory.

J. C.
Hawton, Notts.

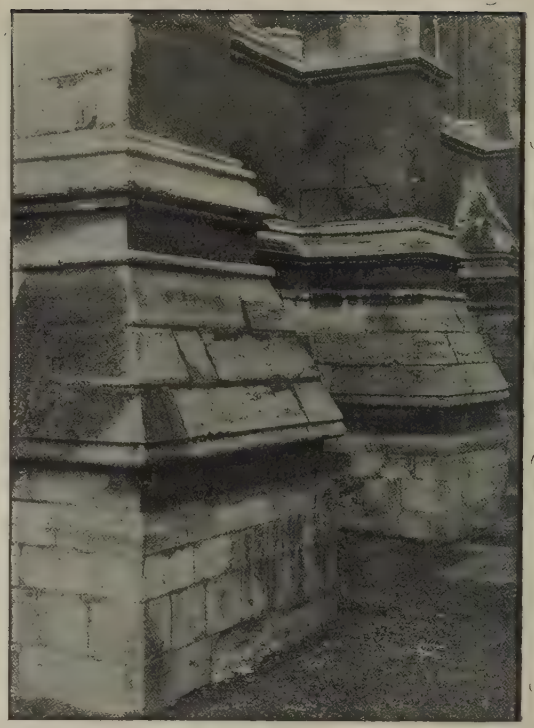
GROUND-COURSES

All heavy buildings require foundations broader than the walls which are to rest upon them; and it is desirable both for constructional and artistic reasons to carry on the additional thickness into the lower courses of the walls also. This spread or thickening of the lower courses of a wall is termed a *ground-course* or *basement course*. It was some time before the importance of the ground-course was realised and the correct principles of its design were arrived at. Almost all the Norman ground-courses were insignificant: it was not till the latter half of the twelfth century that the Cistercians, always sound builders, set the example of providing their walls with massive, projecting ground-courses.[1] In Hereford cathedral the twelfth-century ground-course was little more than a massive roll. And in the early Western school of Gothic one of the most characteristic marks of the style is the insignificance of the ground-course. In the western bays of Worcester nave, the earliest important work of this school, the ground-course is low, and is composed of three members only; the uppermost is a long straight slope; beneath it is a short flattened slope; beneath that a short vertical course: at Pershore the design is the same, except that the upper slope is protected by a semicircular roll: compare Bredon, Glastonbury, Wells choir (754), Salisbury, and Exeter. Elsewhere also the development of the ground-course was slow; even in the choirs of Southwell and Beverley (870), *c.* 1230, the ground-courses are

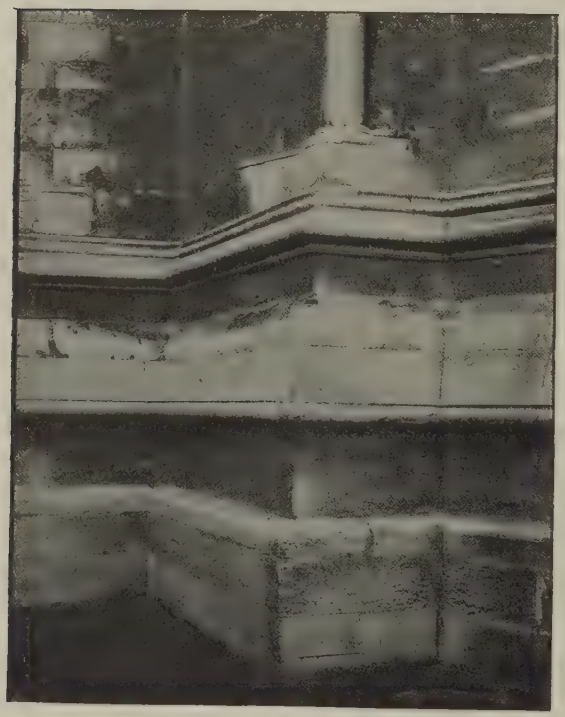
[1] See plate of molds in *Gothic Architecture in England*, 679.



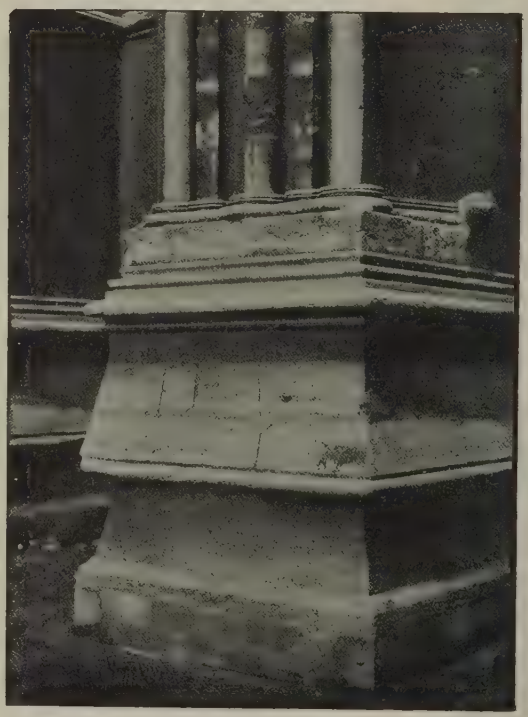
South Transept



South-west Chapel of Nave



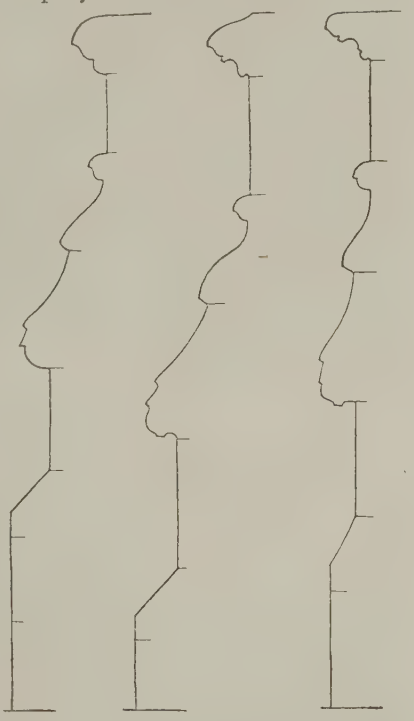
South-east Transept



St. Hugh's Choir

still low. By far the most advanced of its day, *c.* 1192, was the ground-course of Lincoln choir and transepts, and even this was heightened and improved in the design of the nave some thirty years later (868).[1] Rather later is the work in Bridlington nave (870).

No little finesse is displayed in the later designs of ground-courses. In the first place, long slopes, like those of the Western school, are avoided; partly because the joints are then exposed to the rain, and the lower edge of each block of stone is "feather-edged"; or if they are employed, as in Lincoln nave, the edges are cut off (868). Secondly, the favourite undercut water-holding hollow of the thirteenth century had to be eschewed; the rain, and still more the frost, would speedily disintegrate it; at Whitby and Hexham,[2] however, both early examples, hollows do exist which catch the wet; the right method of design is seen at Bridlington (870). Thirdly, to cut short drip, the more important projections of the ground-course ought to be "throated," as at Billingborough, Leadenham, and Hawton (867). Fourthly, as many as possible of the joints of the vertical members should be sheltered by projecting members above; thus at Bridlington the joints of four courses are protected by the string-course beneath the windows, while other projecting members of the ground-course shelter three of its vertical members. To this it may be added that the projecting members should not be given so much spread as to make them fragile; within that limit, however, the more spread the better, in order to get depth of shadow. In the fourteenth century these principles were thoroughly recognised; while even more practical than before, the designs excelled in contrast of light and shade, of curve and vertical line and slope, *e.g.*, in the village churches of Welbourne, Billingborough, Leadenham (869) and Hawton (867), and at Nantwich (855). To the end the ground-courses of the finer churches were noble in scale, proportions, and design; most of all, those of towers, in which the broad vertical bands were often utilised to shelter rows of quatrefoils, or the like, *e.g.*, Titchmarsh, Northants (916), and Lavenham, Suffolk (896). Rich

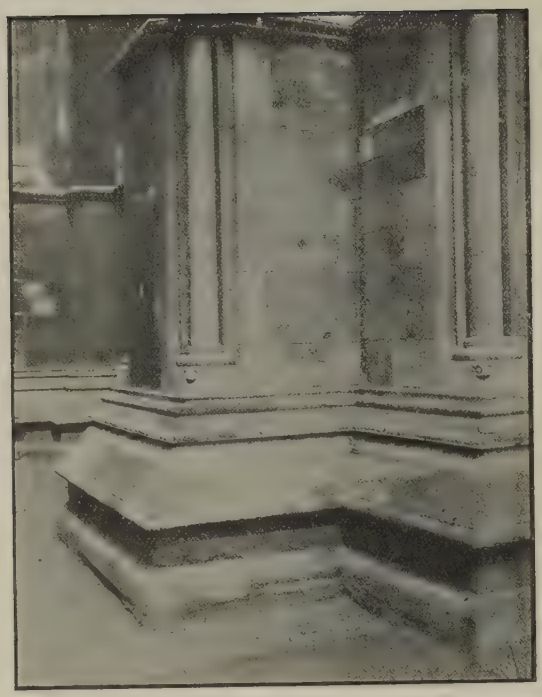


E. S.

Welbourne, Lincs. Billingborough, Lincs. Leadenham, Lincs.

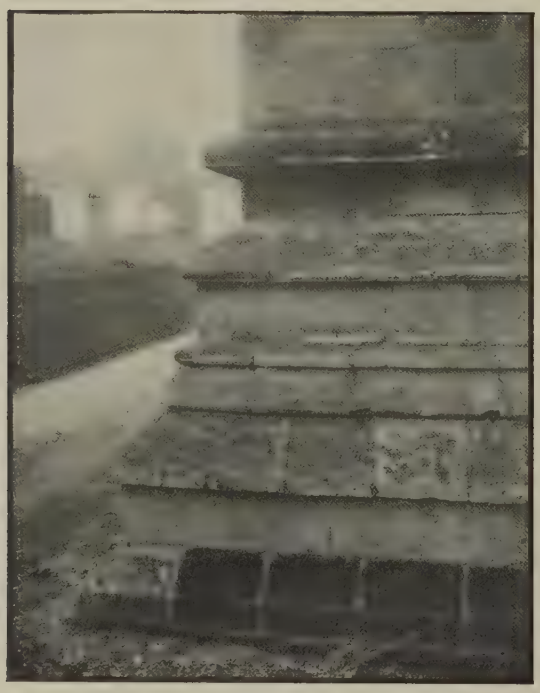
[1] The junction of the two ground-courses is well seen at the angle of the north transept and the nave in the Dean's garden.

[2] These, with ten others, are profiled in *Gothic Architecture in England*, 679.

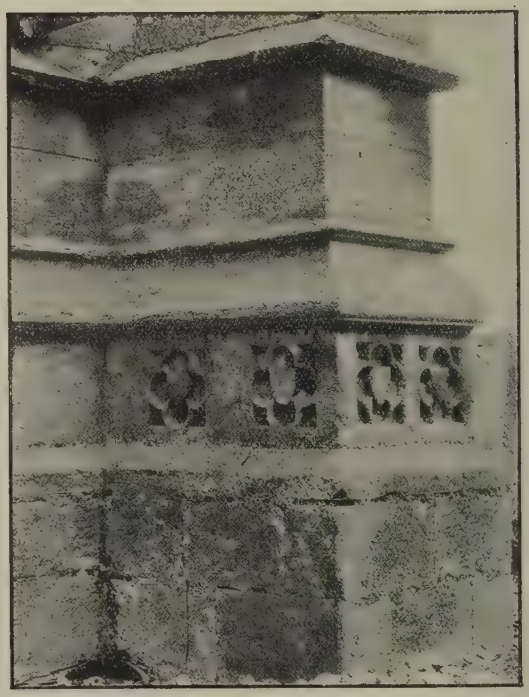


F. B. Beverley Minster : Choir Transept

F. B. Southwell Choir

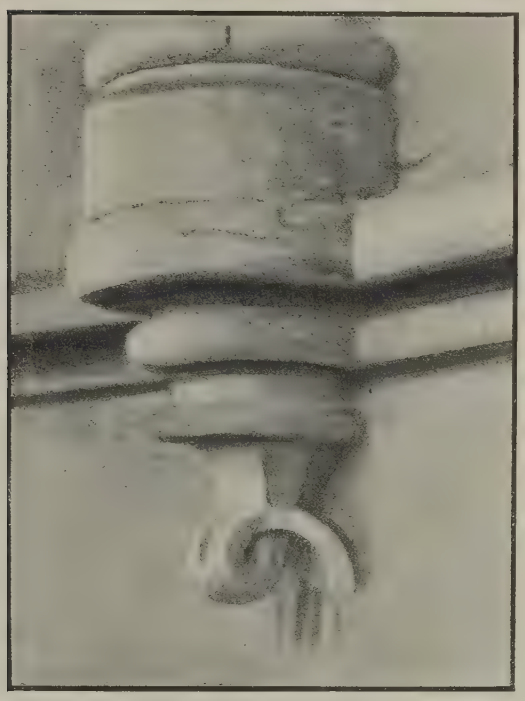


F. B. Bridlington : North Aisle



G. G. B. Rippingale, Lincolnshire

examples of carved ground-courses are seen at Yelvertoft, Northants, Brant Broughton, and Rippingale, Lincolnshire; and elsewhere. In no member does the excellence of the moldings of English Gothic come out more distinctly than in the design of the ground-courses.



G. H. L. Minster, Thanet

F. J. A.

Ilminster, Somerset

CHAPTER XIV

TOWERS AND SPIRES

SECTION I.—TOWERS

TOWERS have been in use for military defence from the earliest times, and are found attached to churches as early as the fifth century. From the first their primary function was to hold bells;[1] but when the number of towers attached to a church was increased to two, three, five, seven, or even more, they cannot all have been built for ceremonial use, but partly for constructional reasons, mainly for artistic effect. Tower groups and spires were the one extravagance of Gothic architecture.

TOWERS OF CHURCHES OF MONKS AND CANONS

The history of these proceeded on a different course from that of parish church towers, which therefore will be discussed separately. In a great English cathedral, monastic or collegiate church, the mark of marks which set forth its character far and away was the presence of a central tower, usually combined with one or two western towers. Both in Anglo-Saxon England and in Normandy a central tower is almost always present in the Greater churches. In the early Christian churches of Gaul central towers were in existence as early as the sixth century, when they were open structures of wood; evidently lantern towers. Even when the central tower, both in England and Normandy, had long ceased to be constructed in wood, the tradition of its use as a lantern still survived. To be of any real use, however, for lighting purposes, the central tower needed to be very broad, and to be pierced with large windows, set low down; as a rule it was lofty and narrow, and its windows were often small. Yet, useless as it was, the lower internal story of the central tower was often given elaborate ornament, as at Winchester, Pershore, Lincoln (331), and elsewhere, all of which are decorated with elaborate arcading unnoticeable from below. Even the Angel tower of Canterbury, though its windows

[1] The subject of the antiquity of church towers and bells is discussed in *Gothic Architecture in England*, 586-590; in Walters' *Church Bells of England*, 8-17; and in R. Lasteyrie's *Architecture Romane*, 376-383.

are of great size, makes little or no impression when seen from within; it is too lofty and too narrow to enter into the *tout ensemble* of the interior. Of all our central towers only two, perhaps, have decided artistic value inside the building; York, with broad square tower of stone (891), and Ely with yet more spacious octagonal lantern

W. M. Northborough, Northants

W. M. Howell, Lincs.

W. M. East Hagbourne, Berks.

G. G. B. Chilthorne Domer, Somerset

of wood (152). Another objection is that the piers of a central tower were so very broad that they greatly obstructed the main vista of the church. To urge this objection, however, is to look at mediæval churches through modern spectacles. The canons had already obstructed the vista by a choir screen, usually of stone,

west of the stalls; and the monks by two screens—a rood screen and a choir screen.[1]

Internally, at any rate, the central tower was little valued in later days, and was closed up by vaulting at Gloucester, Wells, and Winchester. But though of little value as a lantern in a mediæval church, it was magnificently impressive from outside, welding into unity the divergent masses of the building, and signalling the presence of abbey or cathedral far across town and country; so much was this appreciated that at Wells the central tower, built *c.* 1200, was given a second story early in the fourteenth century (142); and at Lincoln the central tower of 1238 was similarly heightened in 1307 (148); so also at Durham (175).

F. B. Sancton, Yorkshire

Internally, the central tower had constructional merits. The four piers at the entrance of the transepts are the weak point in every cruciform church; the pier-arcades of nave and choir and transepts may rack inwardly, and the piers cannot well be buttressed from below against their thrust: though, however, buttressing was not available, their stability could be greatly increased by weighting them with a tower.[2] Moreover, against the four walls of a central tower the four roofs of nave, choir, and transepts could abut conveniently; without it the junction of these roofs would be awkward to arrange.

In spite of all precautions, a central tower was always a source of danger in the Greater churches; it did not rest on solid walls, but on four isolated legs; it was not abutted by solid walls but by open arcades; and its great weight, often running into thousands of tons, tended to rupture its piers, and unless the foundations were exceptionally good, to drive them into the ground, tearing them away from nave, choir, and transept. Several central towers actually did fall; *e.g.*, at Winchester in 1107; at Worcester the "nova turris" in 1175; at Bury St. Edmund's in 1210; at Evesham in 1213; at Lincoln in 1237; at Ely in 1321; others had to be taken down and rebuilt, *e.g.*, Peterborough (919). In many cathedrals of the Domaine Royale,

[1] For the disposition of the screens in non-parochial churches see the writer's *Screens and Galleries*, chaps. iii. and iv.

[2] They were also strengthened at times by strainer arches, as at Salisbury (752) and Canterbury, which were sometimes inverted, as at Wells (437) and Glastonbury; similar precautions were sometimes taken in parish churches; *e.g.*, at Finedon and Rushden, Northants (438).

the French found it necessary to dispense altogether with a central tower, which owing to the vast dimensions of their Gothic cathedrals would have had to be broader and loftier, and consequently heavier and more dangerous than in England. In Llandaff cathedral the central tower was dispensed with altogether; as also at Exeter in the twelfth century and Ottery St. Mary in the fourteenth, in both of which there were built towers at the end of each transept (28).

A very ancient arrangement was to have not only a central tower, but two more

J. S. C. Cartmel, Lancashire

towers forming part of the western façade. An Early Christian façade with two square towers is represented on the fifth-century doors of the basilica of S. Sabina, Rome;[1] and low western towers are seen in Syrian churches at Tourmanin and Kalb Louzeh, not later than the sixth century. Both in Normandy and England the normal arrangement in the twelfth century was for a Greater church to have a central

[1] Illustrated in Cabrol's *Dictionnaire d'archéologie et liturgie;* part xii. p. 577; see also Enlart's *Architecture religieuse*, 124.

tower and two western towers; *e.g.*, in the two Caen abbeys (567) and Southwell, and this arrangement persisted in Gothic; *e.g.*, at Beverley (7) and Lincoln (148). Usually the two western towers were built at the west ends of the aisles of the nave, where they were valuable as resisting any westward racking of the pier-arcades. A broader and more impressive façade, however, was obtained by letting them flank the westernmost bays of the aisles. This is so at Peterborough, Wells, St. Paul's, London, and originally at Ripon (before aisles were added to Ripon nave). and was intended at St. Albans; it occurs also in Rouen cathedral.

In some cases there was but one western tower, which was placed at the end of the nave. This is so still in the Benedictine churches of Ely (65), Malmesbury, Shrewsbury, Wymondham; the Austin canons' churches at Waltham and Christchurch

G. G. B. Yarpole, Herefordshire

(45); the Secular canons' churches at Bangor and Wimborne (884); and was so formerly in Hereford cathedral, in the parish churches of Petersfield and Purton, and probably in Winchester cathedral: as well as in the Anglo-Saxon abbey churches of Durham and Ramsey: to these may be added the unfinished western tower of Bolton priory.

Rarely were larger combinations than of two or three towers employed. At Peterborough there are four completed towers and one incomplete, and there were intended to be five.[1] The end bays of the transepts of Winchester cathedral are plainly intended to have had each a pair of turrets (568); so that, as still in the

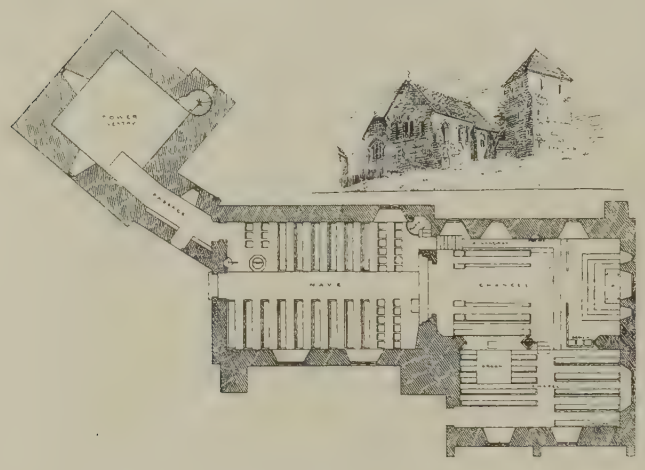
[1] In the frontispiece to the *Gentleman's Magazine*, lxxxv. 2, John Carter shews Peterborough as it would have appeared if its towers had been completed.

Romanesque cathedral of Tournai, there would have been a tower and four turrets in the centre of the church in addition to a western tower. It has been supposed that the choir transepts of Lincoln minster originally terminated in towers, but this is a mistake; it has been shewn [1] that the end bays of these transepts were originally but one story high.

In many cases even churches of the first rank lack western towers; *e.g.*, the cathedrals of Chester, Rochester, Worcester, St. David's, Salisbury, as well as many important monastic and collegiate churches. In some cases western towers are known to have existed, but fell down or were removed; *e.g.*, at Gloucester and Winchester.

TOWERS OF PARISH CHURCHES

Many of the smaller churches never had a tower at all. Such of them as owned a big bell may have hung it in a wooden frame in the churchyard, as may be seen to this day at East Bergholt, Suffolk, where a tower was begun in the sixteenth century, but never completed; even in the Greater churches additional bells were sometimes thus hung; *e.g.*, at Glastonbury abbey.[2]



M. B. A. Garway, Hereford

Many of the parish churches, however, possessed bell-cotes; sometimes on the western gable of the nave, less often over the chancel arch, capable of receiving one, two, or three bells of moderate size. It is probable that bell-cotes were once much more common than they are now.[3] For if a few hundred large parish churches be visited, it will be found that where they have western towers, these are seldom of the twelfth or thirteenth century, but later. As it is not likely that so many large parish churches had no provision for ringing large bells before the fourteenth century, it is probable that up to that date many of them had bell-cotes.

[1] See *Journal* of R.I.B.A., 26th November 1910

[2] See *Church Bells of England*, by Mr H. B. Walters; where also bell-cotes are described and illustrated.

[3] A considerable number of bell-cotes remain in Rutland; viz., Manton, Stretton-in-the Street, Whitwell, Barrow, Little Casterton; there are also several in Northants: see the illustrations (874).

Central towers used to be more common in parish churches than they are now. Even in Anglo-Saxon days some of the later churches had central towers; *e.g.*, St. Mary-in-the-Castle, Dover, Barton-on-Humber and Dunham Magna, Norfolk. In the Romanesque parish churches of Normandy they are more common than western towers, as they are in those of England. Many of them, however, have fallen or have been removed.[1]

Western towers occur from the first in parish churches, but at first somewhat rarely, except in Anglo-Saxon days. Some eighty western towers of Anglo-Saxon design have been enumerated; they are particularly common in Lincolnshire and Northumberland; some of the round towers in Norfolk and Suffolk belong to this period.[2] In Normandy western towers are scarce. The frequency, therefore, of western towers in English Gothic may perhaps be regarded as a "survival" from Anglo-Saxon times. Of Norman western towers that of St. Peter, Northampton, is a late and fine example, but it has been rebuilt one bay east of its original position, probably in the sixteenth century; that at Climping (882) belongs to the last years of the twelfth century; Madley, Hereford, is thirteenth century.

F. B. Brigstock, Northants

The normal position of the western tower is at the end of the nave; here, if the church has aisles, it steadies the pier-arcades. Sometimes the aisles stop short at the tower; as at Dundry, Titchmarsh, Lowick, Sancton, Southwold, and Wadenhoe; less often they flank it; the latter arrangement is unhappy, as it hides away the lower parts of the sides of the tower, *e.g.*, Newark (937) and Grantham (936). Sherburn-in-Elmet, Yorkshire, is an early example of a tower planned on the engaged principle.

[1] A central tower of the first half of the twelfth century is shewn at Tewkesbury (42), and of the second half at Iffley (241) and St. Cross, Winchester (169). The lower part of that at New Shoreham is late in the twelfth century; the upper part is early in the next century (389). That of Chipstead is fourteenth-century work (189).

[2] Most of them are Norman, *e.g.*, Burnham Norton, Norfolk (884); some are Anglo-Saxon but *post-Conquest*, as is shewn by the mixture of Anglo-Saxon and Norman details, *e.g.*, at Haddiscoe, Norfolk (885).

Sometimes the tower is placed unsymmetrically, either to the north or the south, *e.g.*, St. Stephen's and St. Mary Redcliffe, Bristol (948); Norbury, Derbyshire (214); and Yapton, Sussex; this is not only a picturesque arrangement, but allowed the retention of the great west window of the nave, the most valuable source of light in a church. Rarely the tower was placed adjacent to the second bay at the west end of the aisles of the nave, its ground story being utilised as a porch, as at Presteign, Radnor, St. Stephen's, Bristol, and Wisbech (856). Sometimes it is adjacent to the south or north side of nave or chancel;

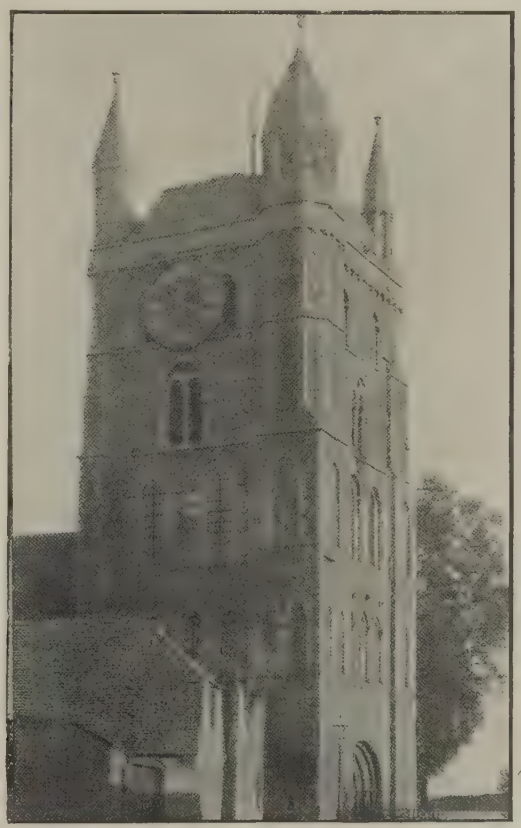
S. S. Lincoln: South-west Vice

Lincoln: North-east Transept

this is particularly common in Normandy and Kent. Sometimes it is altogether isolated from the church; this was especially so where the foundations were boggy, *e.g.*, at West Walton in the Norfolk fen. It is even found in the centre of the nave, as in the Norman church of Gillingham, Norfolk, and the later churches of Halesowen and Rowington, Warwick; thus producing a church quinquepartite in plan.

Occasionally a western tower has arches on the north and south, *e.g.*, Coningsby, Lincolnshire, usually because of the existence of a public footpath; the tower of Sutton St. Mary was originally open (924). It is very rare to find a large western

arch like those at Cotton, Suffolk, and Swinbrook, Oxon. On the eastern side, *i.e.*, next the nave, the tendency was steadily to increase the dimensions of the tower arch, probably to obtain more light from the western window; in some of the later churches, *e.g.*, Louth, the tower arch is magnificent in scale and proportions. But in some churches, both early and late, *e.g.*, Chaldon, Surrey, and Wiggenhall St. Mary Magdalen, Norfolk, the whole western side was left solid except for a small doorway; this probably was to provide a field for a wall-painting, of which Chaldon possesses a remarkable example.



G. W. S. New Romney, Kent

As regards the plan of towers in general, the vast majority are square; a few are octagonal, *e.g.*, Coxwold and Sancton, Yorkshire (875), and Nantwich, Cheshire (855). Where the transepts are narrower than the nave and choir, a central tower may be oblong, *e.g.*, Bath abbey. Effective combinations occur of an octagon and a square, *e.g.*, Boston; Colyton, Devon (890); Lowick (889) and Fotheringhay (19), Northants, and Exton, Rutland (947). An exceptional and effective combination is seen at Cartmel, where a square is superposed on a square diagonally (876). To many of the round towers an octagonal upper story was added subsequently.

In the Greater churches, and occasionally in parish churches, *e.g.*, at Brixworth, Northants, and Broughton and Hough-on-the-Hill, Lincolnshire, all Anglo-Saxon, stone staircases were employed, and they were spiral, and were carried up in a circular tube of masonry (a "vice"); such circular staircases were in use even in Roman days.[1] From these circular turrets it was but a short step to circular towers. Of these at the beginning of the nineteenth century there were 118 in Ireland, where the fact that almost invariably they are only some 20 ft. distant from a church and that their doorway always faces the entrance to the church, is conclusive proof that they are of Christian and not of Pagan origin. The fact that the door-

[1] There is a circular stair-turret at Brigstock, Northants; but no staircase in it (879).

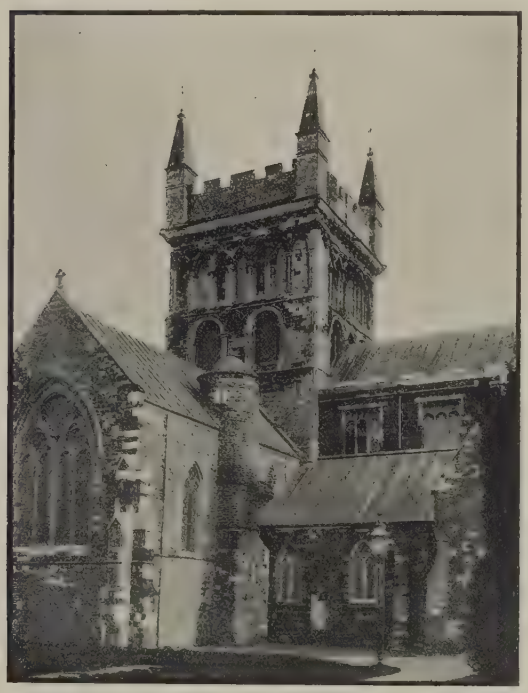
way is not on the ground, but high up, only to be reached by a ladder, proves that they are towers of refuge; and they were built very tall partly to serve as watch-towers, but mainly to provide numerous chambers where a whole congregation might take temporary refuge. They are of three periods, A.D. 890-927; A.D. 973-1013; A.D. 1170-1238. As the forays of the Vikings in Ireland ranged from 839-1016, we may take it that it was mainly against these that the towers were built. Several examples occur in Scotland, *e.g.*, Brechin. In England some of the round towers of Norfolk and Suffolk are of pre-Conquest date, had originally the doorway high up, and retain traces of floors; these also may have been directed against raids of Scandinavian pirates. The purpose of the erection of a round tower in Brittany is distinctly stated by the biographer of St. Tenenan: "He recommended the chief man of the people to erect a little *round tower* near the church of Ploabennec, wherein to deposit the silver plate and treasure of the same church and protect them against the sacrilegious hands of the barbarians, should they wish to pillage the same church."[1] In defence of churches in the valleys of the Loire and Seine from the heathen Northmen towers were built in front of the doorway; these, however, were for the most part square. At Ver, on the coast of Normandy, is a tall and slender square tower of the eleventh century, which is detached from the church, and has its doorway high up, on the south side; in front of the latter are two corbels to support a landing stage. The reason why in Ireland, Scotland and England these towers of refuge were usually circular is either that the builders possessed neither the requisite tools for working stone nor the skill to use them, as in Ireland, or that the district was a chalk one, and the towers had to be built of flints: if freestone had been available for groins, no doubt the towers would have been built square. Of round towers in England there are said to be 130 in Norfolk, 40 in Suffolk,

F. R. P. S. Climping, Sussex

[1] Miss Stokes' *Early Christian Art in Ireland*, 56.

6 in Essex, and others in Cambridgeshire, Berkshire, Sussex, Surrey, and Northants.[1]

To Englishmen, after the Vikings, the most objectionable people were the Welsh and Scotch.[2] Every valley leading from the hills of Wales and Scotland into our rich plains needed its guardian castle against invasions in force; while the villagers not infrequently secured their safety against forays on a small scale by fortifying the church towers. In Herefordshire the church tower was quite usually detached from the church, and was low, square, and solid; in later and safer days



F. B. Wimborne, Dorset

H. E. M. Christchurch, Hants

another story of wood was added, and often a wooden spire as well; *e.g.*, Pembridge and Kington, Herefordshire (926). Bronllys, Brecon, is an instance of a detached tower on the Welsh border. Some Shropshire western towers are extremely strong;

[1] Rev. Dr Cox's *Churches of Norfolk*, i. 6, gives a dated list of those in Norfolk. The round tower of Harewood, Herefordshire, is an outlier.

[2] Mr A. Hamilton Thompson in *Military Architecture in Mediæval England* describes at length the lines of castles by which the western and northern marches of England were defended, and gives examples of Welsh church towers which have defensive characteristics; also examples of fortified rectories and vicarages.

e.g., Lydbury North, which is out of all proportion to the church. Clun, Clunbury, Stokesay, are all massive western towers in the same neighbourhood. Ewyas Harold, Herefordshire, also possesses a very massive western tower. Many of the churches in Herefordshire had western towers added for defence; apparently this was late in the twelfth century, for many of them have a high sloping basement course topped at five, six, or more feet from the ground with a bold roll molding. These have been placed anyhow against the Norman west front, so that they are by no means central. At Sarnesfield the tower is placed between the nave and south aisle (917). At Dilwyn it obtrudes into the south-west corner of the nave. At Kinnersley it sticks out from the west end of the north aisle, and this tower with its great saddleback roof, and sheer sides unbroken, except for the tiniest slits of windows and a multitude of putlog holes, looks as grim as a keep or peel tower. At Weobley, the later tower is twisted at an angle from the west corner of the north aisle, and probably was originally one of the many detached towers for which this country is remarkable (922).

F. B. Wimborne: from North

G. G. B. Burnham Norton, Norfolk

But the most parlous county to live in was Northumberland, where farmhouses and vicarages as well as churches were often fortified. In later days these detached towers were often joined up to the church by the addition of an aisle or chapel; *e.g.*, Garway, Herefordshire (878). A certain number were western towers, joined up to the church from the first. In these there would be no western or other external doorway. The only doorway would be on the east side of the tower

opening directly into the church. This doorway could rapidly be built up or barricaded in case of need. Both classes of defensible towers, like the peel towers on the Scotch border, are broader than is usual in parish church towers, in fact their outlines remind one of those of the Norman keeps, on which no doubt they were modelled. Internally, probably, like the peel towers, they were divided into two or three stories by floors. The tower of Woodsford, Dorset, up to 1863 had for external openings only two slits, one above the other in the west wall of the tower. Each narrow slit was widely splayed into a shouldered arch inside, precisely like the loopholes in the ancient walls of York; plainly it was intended to be used by archers and crossbowmen.[1] At Great Salkeld, Cumberland, the only door of the tower opens into the nave, and is iron plated towards the church, while inside it is nearly covered with iron bars. At Bedale, Yorkshire, at the foot of the tower staircase was a portcullis, the existence of which was unknown till it fell from the effects of a stroke of lightning. The excessive thickness of the walls of the Melsonby tower in the North Riding of Yorkshire is also probably due to the same reason. Ewenny priory in Glamorgan is a remarkable example of the combination of church and castle in one structure.

F. B. Haddiscoe, Norfolk

In small churches access to the ringers' chamber and the belfry was usually gained by a ladder; a few original ladders remain; there is one at Ardingly, Sussex, massive in the extreme. In the Norman church of Kirkburn, Yorkshire, there is an open staircase of stone which ascends the south wall of the nave to the western tower; then it turns and crosses the west wall. In the larger churches the usual staircase was a spiral *vice*. In the Anglo-Saxon church of Brixworth there is a semicircular stair turret on the west side of the western tower.[2] There is a square Anglo-Saxon stair turret on the south side of the west tower of Minster, Thanet. In Norfolk and Suffolk the vice is usually placed inside, and so forms no part of the composition of the tower (Bramford is an exception); in Somerset, on the other hand, the turret is placed outside, usually to the north or south or

[1] Rev. W. Miles Barnes' *Dorset Field Club*, xii. 36. On peel towers see Mr A. Hamilton Thompson's *English Military Architecture in the Middle Ages*, p. 269. On fortified towers see Mr Walter Johnson's *Byways in English Archæology*, p. 112.

[2] Other examples remain at Brigstock, Northants, Hough-on-the-Hill, and Broughton, Lincolnshire, Newton Nottage, Glamorgan, and in ruins at North Elmham, Norfolk. See Baldwin Brown's *Arts in Early England*, i. 175.

at a corner, and forms a conspicuous feature in the composition. In early examples, between the central shaft or newel and the turret wall, a spiral vault was usually built, and on this vault the stone steps were laid; in later examples the vault was omitted, each step being simply a prolongation of one of the blocks of the newel, with its other end resting on the wall. Stair turrets were also built to gain access to a roof, to the chamber of a porch, or to a rood loft, *e.g.*, at Wimborne (883) and Christchurch (883). Examples of the spiral vault in advanced thirteenth-century work may be seen in Lincoln minster (880): they are constructed with transverse ribs up to a certain height, and then with plain grouted vaults. In one example a groove is cut for the hand; in the other there is a projecting stone rail.

F. B. Wadenhoe, Northants

In timber districts the smaller churches have often frame towers of oak; *e.g.*, Margaretting and Stock, Essex. If the tower is low and narrow, as at Ford, Sussex, it may be perched on the two western tie-beams of the nave (923); at Thursley, Surrey, there is actually a wooden central tower, "supported by four massive moulded posts cut from huge oaks, which are linked together by four substantial tie-beams with spandrels, rising from the north and south side arches."[1] Where the western tower is large and heavy, its supports rise from the ground; sometimes its eastern side is boarded over, occasionally open to the nave.

The following are the seven loftiest towers in Somerset:—

	Width above the Ground-Course.	Height to the Top of the Parapet.	Pinnacles Extra above the Parapet.	Turret (if any) Extra above the Parapet.
	Ft. In.	Ft. In.	Ft. In.	Ft. In.
Taunton, St. Mary Magdalene	30 1 by 29 11	131 6	32 0	...
Glastonbury, St. John	25 2	124 11	9 6[3]	...
Wells, St. Cuthbert	32 7	122 7	20 0[2]	...
Chewton Mendip	24 7	105 7	13 6	...
Taunton, St. James	25 6	104 6	11 9	16 0
Banwell	24 4	101 1	11 9[2]	16 0[2]
Blagdon	?	100 6	...	16 0

[1] Cox's *Little Guide to Surrey*, 193. [2] Approximate only. [3] Lowered.

It is in Somerset that tower design is seen to the greatest advantage. The money that was spent elsewhere in enlarging the chancel, providing the nave with a clerestory, building chantry chapels, adding a lofty porch, in the towns and villages of Somerset was spent by preference on towers. Spires are scarce; and of those begun some were left unfinished, *e.g.*, at Shepton Mallet (906) and Yatton. Octagonal towers are frequent; but it is the square towers that are the glory of the county. Yet of the latter it is the exceptional splendour of the relatively few which has won Somerset its high reputation; the greater number fall below the average of East Anglia. None of them are of early date; the series commences with the central tower of Wells cathedral, *c.* 1321 (142); the south-west tower of the same cathedral, probably built between 1367 and 1387 (903); and the western tower of Shepton Mallet, which also probably belongs to the last quarter of the fourteenth century; few can be definitely dated, except St. John's, Glastonbury, which is stated to have been built in 1485; probably most of the towers belong to the last half of the fifteenth century, while some are later still. It has been supposed that the towers had their rise in the desire to accommodate large peals of bells; but these do not occur as peals till after the Reformation, five being the usual number; while of peals of eight the earliest is supposed to be that at Horham, Suffolk, where the peal was made up to eight in 1672 and 1673.

Brentingby, Leicester

Owing to the excellence of the local building-stones the amount of carved work is very large. Nowhere is seen so great a profusion of pierced parapets, battlements, and pinnacles. Canopied niches abound, often with miniature vaulting, on all the faces of the towers and at all stages, except the belfries; they may even be found in the parapets; they are often supported by characteristic foliage in low relief or by angels with outspread wings; once they were peopled with statues, which still remain at Isle Abbotts and Kingsbury Episcopi. There is a beautiful representation of the Annunciation in the niches on the west front of Banwell tower, Somerset. Grotesque animal figures abound not only as gargoyles, but in the

cornices of parapets, particularly at the angles, and sometimes in the string-courses.

A characteristic is the paucity of the diagonal buttresses common in East Anglia, a pair of buttresses being provided at each corner of the tower; sometimes the angle between them is masked by a thin slip of diagonal walling; in the belfry stage a spear-like pinnacle is often seen hanging precariously in the air; *e.g.*, at Dundry, Chewton Mendip, and St. Mary Magdalene, Taunton (910, 911, 912).

Elsewhere the stair turret is often built inside the wall of the tower, the angle of which is filled with masonry internally to afford room for the winding stairs; thus they do not necessarily disturb the symmetry of the tower, being invisible from outside.[1] But in Somerset almost universally they are built externally, and in some districts are made a prominent or the most prominent feature of the design; the large majority are of bold projection and rise high above the parapet. This characteristic is very conspicuous in small examples, such as Brislington. It is common in the Bristol neighbourhood, *e.g.*, the Mayor's chapel and St. Augustine the Less, Bristol, and Westbury-on-Trym, and extends north of Bristol to Westerleigh and Yate (913). The stair turret has a height of about 19 ft. 6 in. above the parapet at Wells, 18 ft. 3 in. at Wraxall, 17 ft. at Brislington, and about 16 ft. at Banwell, Blagdon, Cheddar, and St. James, Taunton.[2]

F. B. Steyning, Sussex

A considerable number of the churches have no clerestory, and the west window is the main source of light for the nave; consequently there is a tendency to magnify the west window of the tower and minimise the west doorway.

In some examples the belfry windows, instead of louvres, are filled with perforated stonework; this "Somersetshire tracery" may occur also in the windows of the ringers' chamber; *e.g.*, Huish Episcopi (909) and North Petherton (908).

Sometimes the coronal of parapets and pinnacles is brought into the design of the tower, the buttresses being continued up to form pinnacles, *e.g.*, at Shepton

[1] Oakham is an example of a tower in which symmetry is disturbed by an internal staircase.—A. H. T.

[2] Vices are shewn at St. Georges de Boscherville (31), the south-east transept of Lincoln (69), Salisbury (97), Richmond (20), Earl Stonham (897), and Ilminster (872).

Mallet (906), Winscombe (907), and Ilminster (872); but at times, *e.g.*, at Dundry (910) and North Petherton (908), it has no connection whatever with the design below, and oversails the tower.

As regards the fenestration, two main designs may be distinguished, according as the fenestration of the ringers' chamber is identical with or different from that of the belfry.

(*a*) 1. Where they are the same, each story may contain but a single window. As small and slender towers, in which there is not room for more than one window in a story, naturally occur most often, this is the largest class; in fact it includes nine-tenths of the whole number of towers. It is most common in or near Bristol and along the Bristol Channel. Among the finest examples are Dundry (910), Brislington, Tickenham, Backwell, Portishead, and Batheaston. Such towers offer less scope for artistic treatment, and as a rule are inferior in interest to those of the other groups.

F. B. Lowick, Northants

2. In the next group, which is small, there are two windows in each stage. The examples are Taunton, St. Mary Magdalene, rebuilt (912); and St. John's, Glastonbury, both superb; Chewton Mendip (911), Wells western towers (903), and Leigh-on-Mendip.

3. The next group contains three windows in each stage; it is naturally small, as few but central towers are broad enough for the purpose; the only examples are the central towers of Wells cathedral (142) and Ilminster (872).

(*b*) A better gradation of ornament, however, is obtained by giving the belfry stage more windows than the stages below. (1) The first group has two windows in the belfry, and one in the ringers' chamber; this group includes more fine towers than any other. These towers are widely distributed, but are most common near Taunton. The finest examples with four stages are North Petherton (908), Huish Episcopi (909), Kingsbury, Bishop's Lydeard, and St. James, Taunton (rebuilt); and with three stages; Isle Abbotts (rebuilt), Kingston, and Staple Fitzpaine. (2) A second group has three windows in the belfry, of which only the central window is pierced. The parent of the type is Shepton Mallet, and towers of this kind are thick in the Cheddar valley (906). The finest examples are Shepton Mallet, Banwell, Cheddar, Winscombe (907), Weston Zoyland, and Bruton; to which may be added Axbridge, Wedmore, Bleadon, South Brent, Langport, Mark, Long Sutton, Weare.

(*c*) Just as in the interiors of Pershore and Southwell choirs the triforium and clerestory are blended into one, so in four important towers the window design of the belfry is carried down to the ringers' chamber. The four examples are St. Cuthbert, Wells (23), Wrington (904), Evercreech, and Batcombe.

(*d*) In five towers, all in the same district, Shepton Beauchamp (905), Hinton St. George, Norton-sub-Hamdon, Curry Rivel (rebuilt) and Crewkerne, though each face of the tower is divided into two stages by a string-course, the latter is

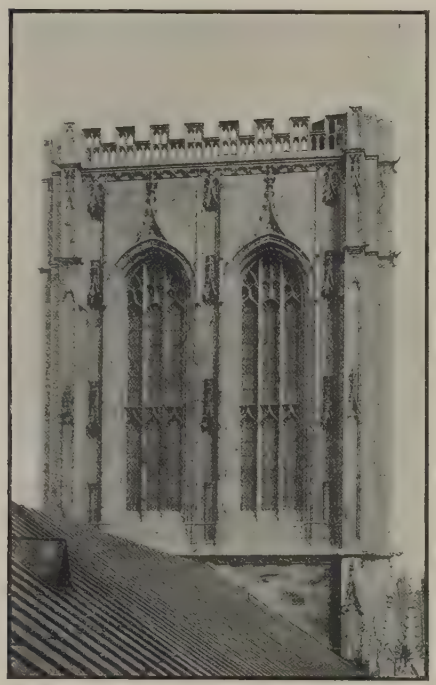
E. K. P. Colyton, Devon

interrupted by a tall single window. Groups C and D, though interesting in design, fall far short of the two first groups.[1]

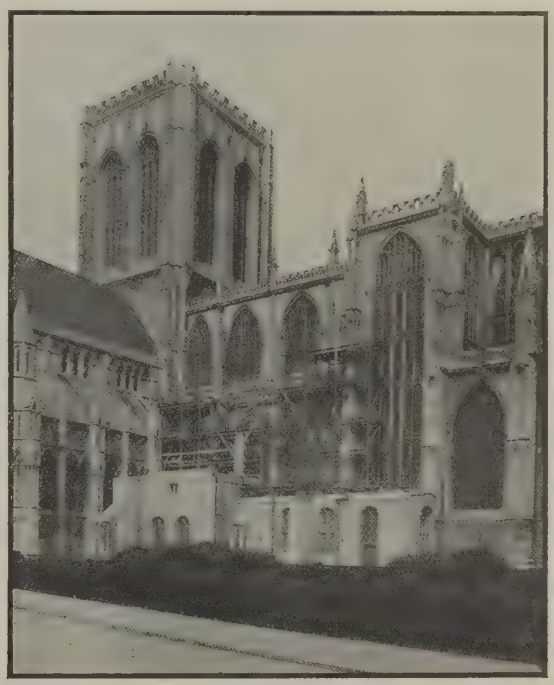
[1] The materials for this account of the Somerset churches are drawn partly from the writer's own observations, but mainly from the valuable paper in the *Archæological Journal*, lxii. 246, by Mr R. P. Brereton, whose loss all archæologists deplore, and more particularly those whom he honoured with his friendship. See also important papers in the *Proceedings of the Somersetshire Archæological and Natural History Society*, vols. l. and li., by Dr F. J. Allen.

ILLUSTRATIONS OF TOWERS

New Romney, Kent (881).—This is work late in the twelfth century, the two upper stories somewhat later than the lower. It possesses both bulk and height. Like the Norman façades, such as those of the transepts of Norwich, Ely, and Winchester, it is divided into numerous stories. In front of the illustration is a buttress containing a "vice." The ground story is plain but for the western doorway; the two top stories have less ornament than the two beneath; but this would have been compensated by the addition of a spire, the stump of which is seen in the illustration. The spire, with its corner pinnacles, if completed,



C. F. N.



York Minster

would have been of the type of those of Oxford cathedral and Witney. The buttress system is highly developed for the period.

Climping, Sussex (882).—As the western doorway shews (706), with its mixture of Romanesque and Gothic ornament, the tower belongs to the last quarter of the twelfth century. As in most flint towers, the windows are few and small, freestone having to be brought from a distance. Still further to economise freestone, the lower windows are pierced through the freestone buttresses. It has the normal number of stories; viz., one on the ground, one for the ringers, and one for the bells. The buttresses are massive, but are stopped half-way, except that which contains the vice.

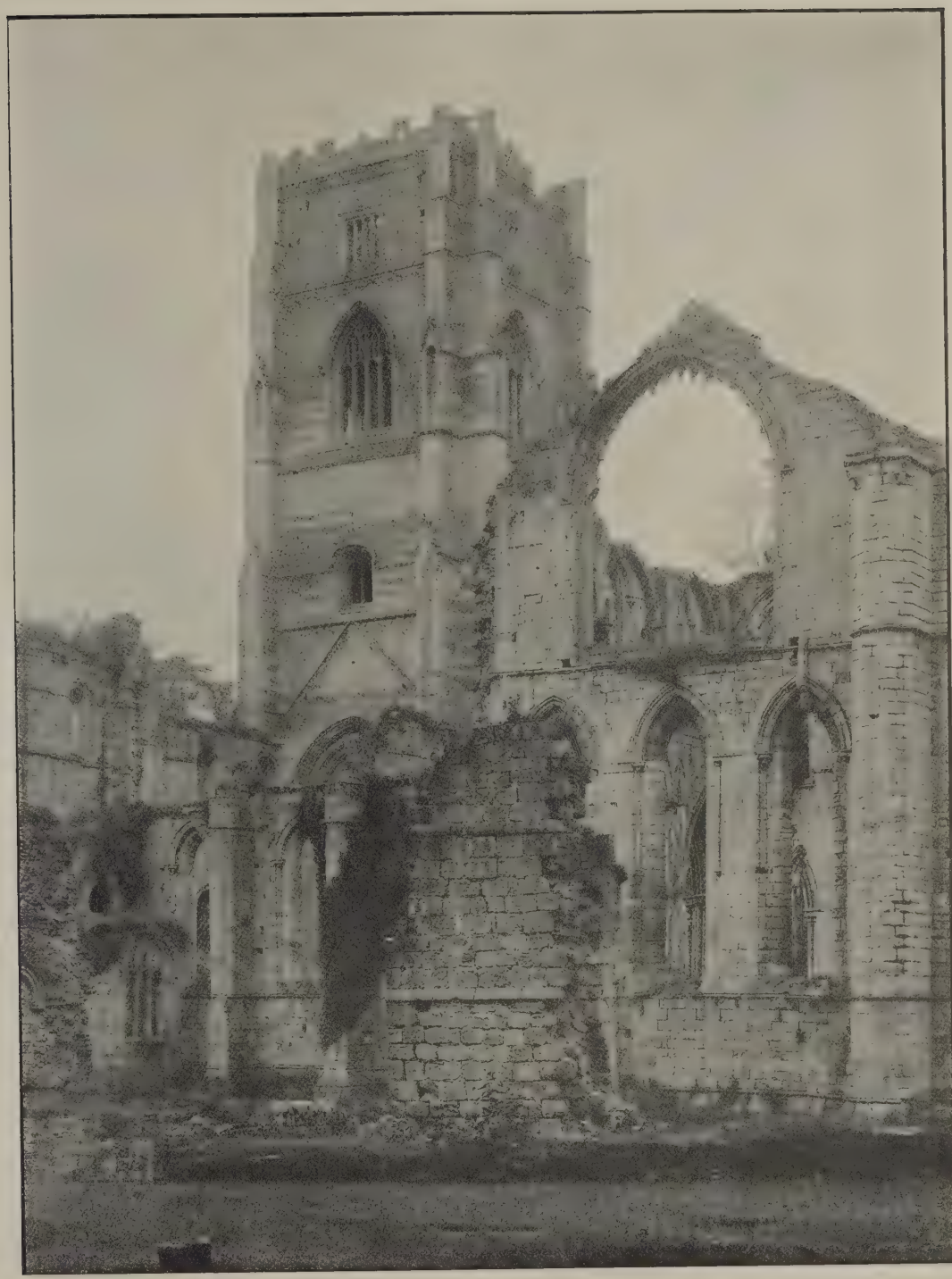
Wimborne Minster, Dorset.—The central tower is late in the twelfth century. The

lower story has externally two large round-headed windows in each face, and internally rich arcading. The upper story has arcading of round-headed arches on each face, which, intersecting, produce seven pointed arches, five of which originally were glazed. Note the absence of buttresses. A spire, added in the thirteenth century, fell in the reign of Elizabeth. The present parapet and pinnacles were added in the seventeenth century (883). The western tower was added between 1448 and 1464, and served as belfry (884).

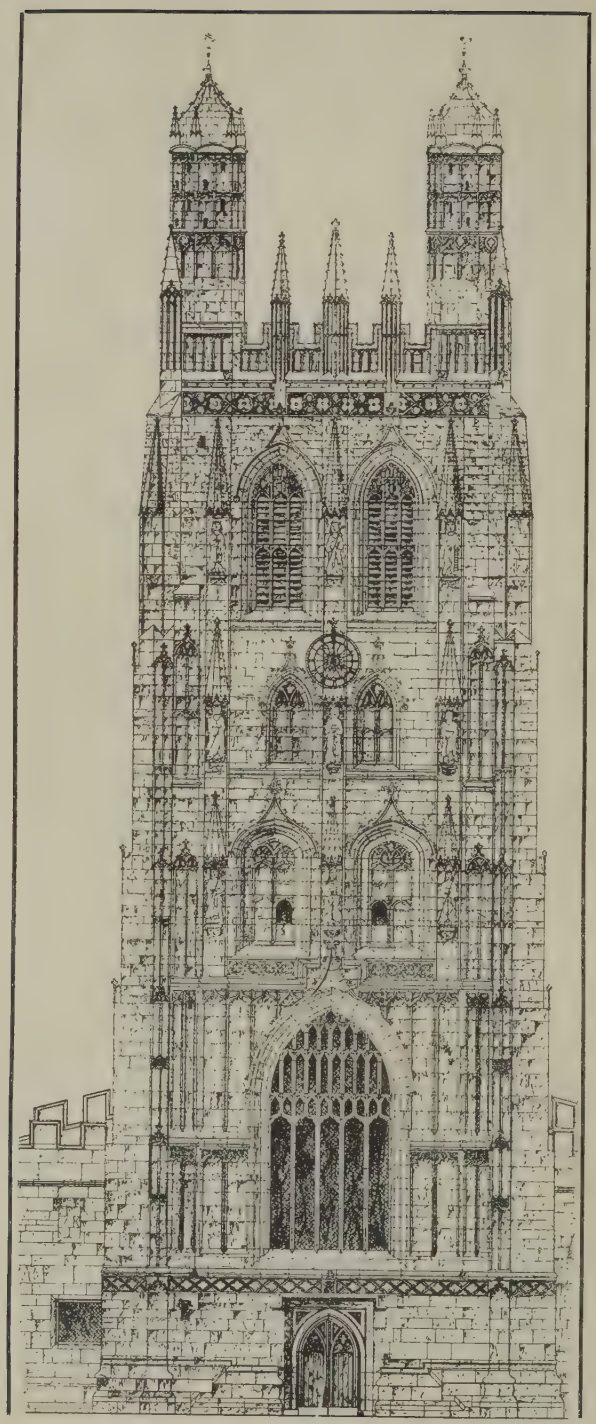
A. P. Hedon from North-west

Tewkesbury (42, 44).—This tower is of four stages and has been brought into greater prominence by the flattening of the roofs. Being a central tower, it is necessarily broad (46 ft.); and as the pinnacles rise to a height of 148 ft., it is well proportioned. All four stages are Norman; the battlements and pinnacles were added in 1660.

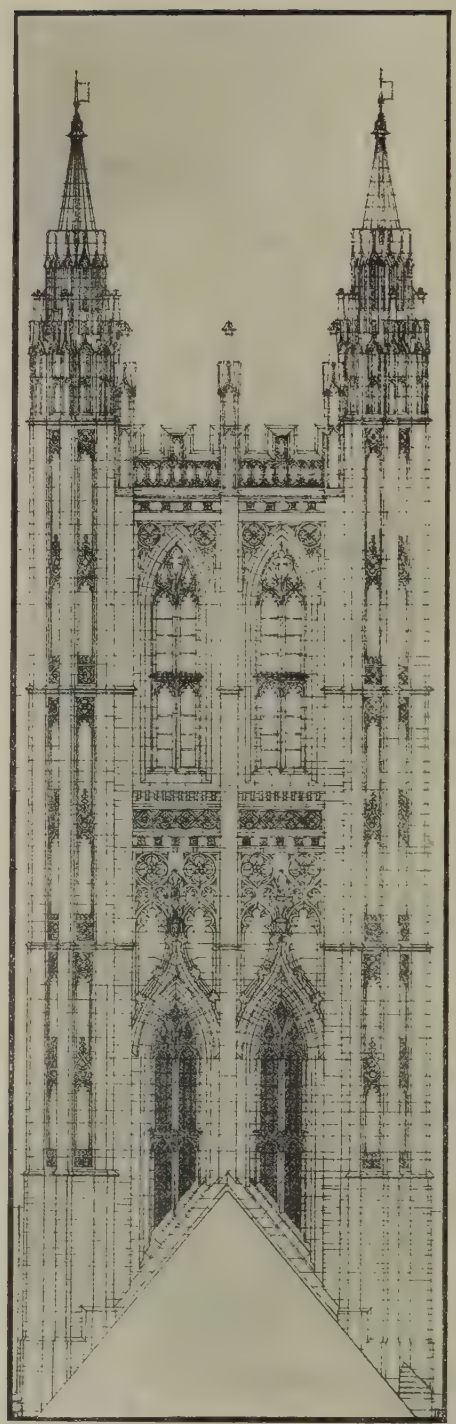
Durham Cathedral (175).—The huge central tower, 218 ft. high, is in two stages, the lower of which was still unfinished in 1474, and would of itself form a very adequate central



M. C. Fountains Abbey, Yorkshire



W. S. J. Wrexham, Denbigh



F. L. B. Canterbury Cathedral : Central Tower

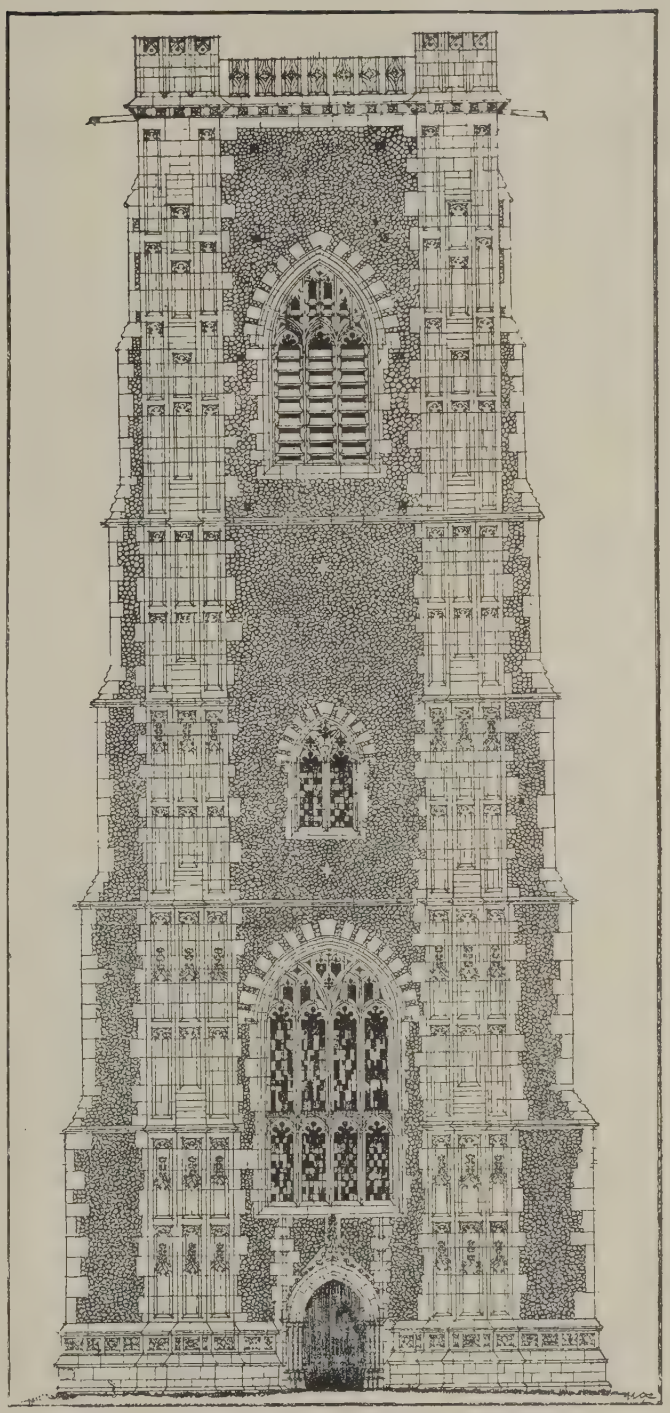
tower; it has the unusual feature of an external gallery, which perhaps originally was a parapet. The upper stage is later still; and from the squinches at the angles must have been intended to carry a spire, probably of stone; for the same reason each corner of the tower is strengthened with a pair of buttresses, and they are continued up to the summit.

The lower parts of the western towers are divided into numerous stages by bands of arcading, and were probably begun soon after the completion of the nave in 1133; they were not completed till early in the thirteenth century; up to 1697 they carried tall timber spires.

Burnham Norton, Norfolk.—A Norman tower of flint which retains its original fenestration; the battlemented parapet is of later date (884).

Haddiscoe, Norfolk.—A Norman tower of flint divided by strings into four stories; the battlemented story is of later date. The upper windows, with their triangular heads, some of them wrought out of a single block, and the midwall balusters, are of Anglo-Saxon character; but the detail, *e.g.*, the chevron ornament and the scalloped capitals, shew that the work is of the twelfth century (885).

Wadenhoe, Northants (886). —This is a thirteenth-century tower; it presents an early example of the use of the diagonal buttress. Both in Normandy and England gabled or "saddle-back" towers were common in early work; numerous examples occur



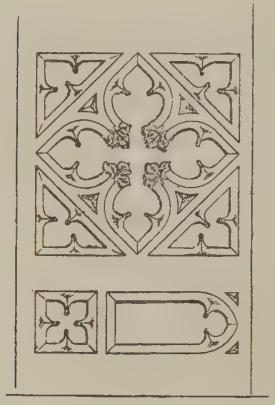
A. G. B. Lavenham, Suffolk

in Northants; they are most common to the south-west of Northampton; *e.g.*, Cold Higham, Maidford, Radstone, Thorp Mandeville; there are several also near Bath. *Cf.* Ickford, Oxon.

Brentingby, Leicester (887).—A variant of the above is seen at Brentingby, the "saddle-back" roof being surmounted by a pinnacle. The ogee arches of the pretty belfry windows and niche point to a date in the second quarter of the fourteenth century. The weatherings of a loftier nave-roof survive.

Steyning, Sussex (888).—Bulk and solidity are more valuable in a tower than even height; nowhere were squat, massive towers in greater favour than in Sussex, where, as at Steyning, they persisted till the sixteenth century, and were as a rule crowned by a hipped roof, covered with red Sussex tiles contrasting well with the grey flintwork below. At Steyning the flints are arranged chequer-wise. The buttresses are set diagonally, as in many churches from the fourteenth century onwards. The large size of the Norman windows in the clerestory points to a date for the nave late in the twelfth century.

Ely Western Tower (65).—The lower part of this tower seems to have been built late in the twelfth century, and is divided, like the façade, into multifarious stages by numerous bands of arcading in harmony with the design of the west front (440). On this was superposed (according to Bentham about 1380) a light octagon with corner turrets rising to a height of 215 ft. The arches which carry the tower are exceptionally



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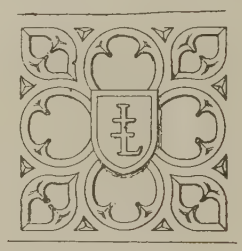
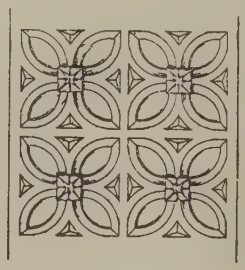


Lavenham Tower

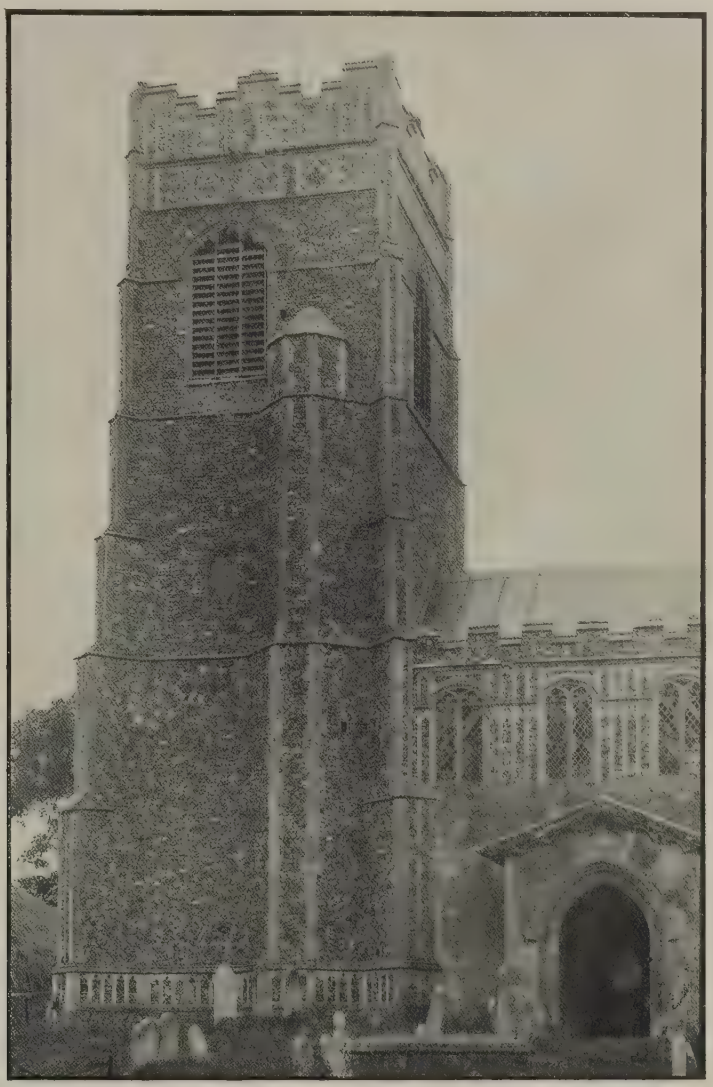


lofty, and were found to be unable to carry the additional weight; new arches were therefore inserted beneath them and their piers were thickened. At one time the octagon was surmounted by a light timber spire. It is possible that in the western tower of Ely we see the origin of such designs as those of Boston, Lowick, and Fotheringhay.

Fotheringhay, Northants (19).—The nave and tower were rebuilt in 1435 to correspond with an earlier chancel; the contract for the rebuilding was made in 1434 and was reprinted in 1841 by the Oxford Architectural Society, with woodcuts of the details mentioned in it. The collegiate part, the chancel, was pulled down at the suppression of colleges. The church possesses a broad and low western tower engaged in the aisles, with octagonal battlemented pinnacles; this is surmounted by an octagon too tall for the tower below and too much pierced with windows. Though unvaulted, the nave has flying buttresses.

Lowick, Northants (889).—The faulty proportions of Fotheringhay are avoided at Lowick. The square tower is lofty, and the octagon comparatively low; the space between the tall substantial pinnacles of the tower and the octagon is bridged by non-constructional flying buttresses. By means of broad bands of geometrical patterns the whole steeple is divided

into three stories; the first corresponding to the nave, the second including ringers' chamber and belfry, the third the octagon; the two lower stories are again subdivided by molded



G. G. B. Earl Stonham, Suffolk

strings. Bands of geometrical ornament are common in late towers, especially in the ground-courses; *cf.* Wrexham and Wisbech.

Colyton, Devon (890).—The composition of this tower is not unlike that of Lowick,

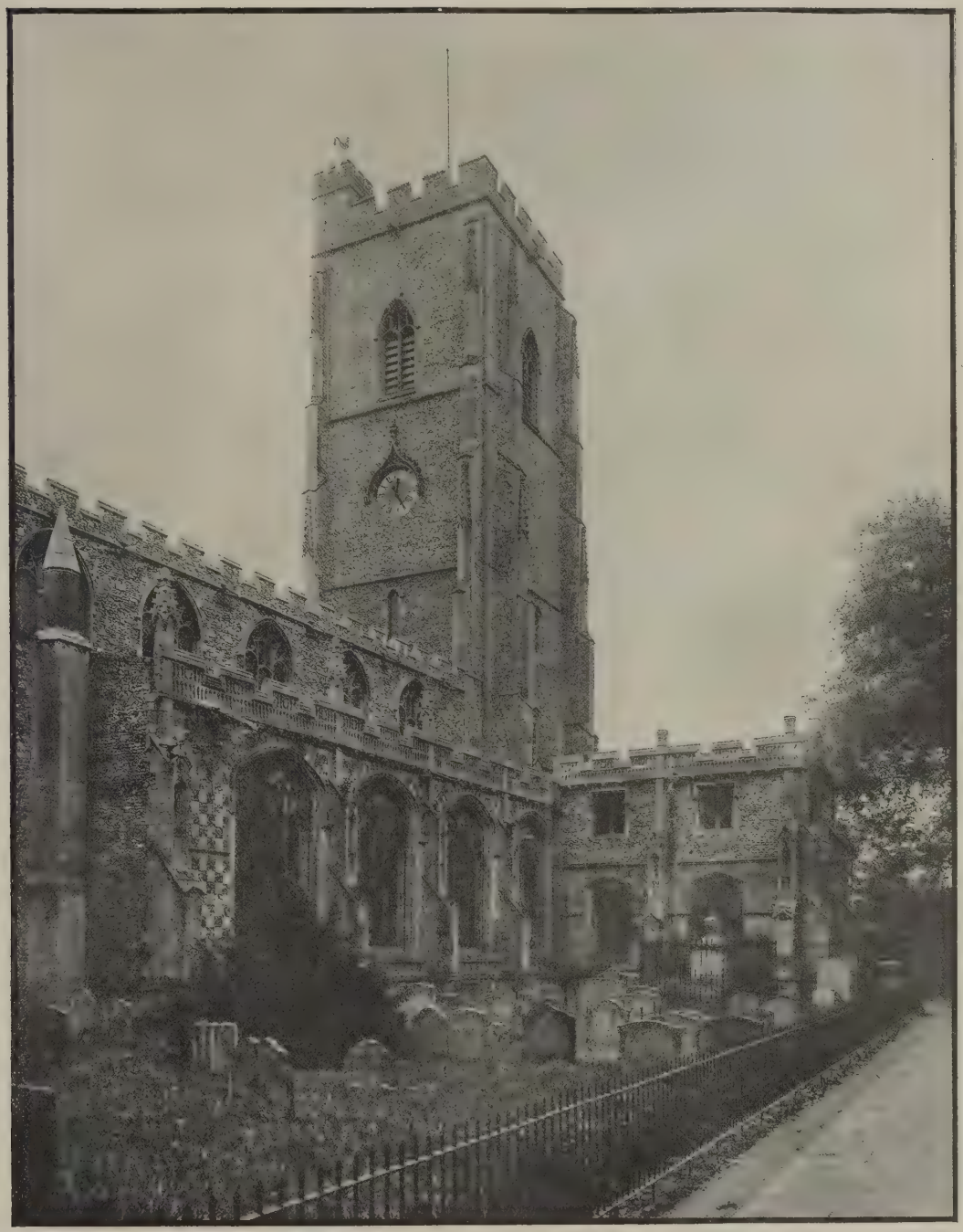
except that at each angle of the square tower a pair of small pinnacles is substituted for a single large one.

Wisbech, Cambridgeshire (856).—This tower is on the north side of the nave, and its ground story provides a north porch. It is three stories high, but the hoodmolds of the windows are continued so as to form strings, so that at the sides there are, as it were, six stories; this gives it greater apparent height. Though not lofty, its breadth, solidity, and strength make it a most satisfactory design. Admirable, too, is the upward gradation of ornament from the plain strings to the rich heraldic band at the base of the top story and the coronal of carved parapet, stepped battlements, and pinnacles. Excellent, too, is the treatment

C. F. N. Blakeney, Norfolk

of the buttresses, which are set well apart, so as to allow the angles of the tower to appear between. Note also how the three stories recede upwards, so as to avoid appearance of top-heaviness. At the base is a carved ground-course. This tower is said to have been begun *c.* 1495.

Howden, Yorkshire (1).—This is a central tower, with horizontal parapet, begun by Walter Skirlaugh, Bishop of Durham, 1346-1406. Here excessive fenestration greatly injures the effect of its great height and fine proportions. With the Howden tower may be compared three other central towers in the North of England; that of York minster, 1400-1423; that of Durham, probably begun *c.* 1470; and that of Holy Trinity, Hull, probably



G. H. T. Mildenhall, Suffolk

finished 1520 to 1529. Of these the York tower is the simplest in design, consisting merely of a single tall lantern (891). The Howden and Durham towers have a tall lantern surmounted by a lower one (175); at Hull this disposition is inverted. The upper stage of the Howden tower appears to be considerably later than the lower one.

York Minster (891).—The central tower is a vast lantern, being open internally to a height of 180 ft. from the floor. The noble simplicity of its single story is imposing in the extreme, and its vast width and bulk quite compensate for any deficiency in height. Pinnacles may have been intended, or else another story, as at Durham. Within it, as at Canterbury, is probably encased an earlier tower. It is 198 ft. high; 2 ft. higher than the western towers: the crossing below has an internal width of 93 ft.

F. B. Covehithe

Hedon, Yorkshire (892).—In this central tower a quiet, solid, and satisfactory design is seen. The ornament grows gradually in richness from the ringers' story to the belfry, and from the belfry to the double parapet and pinnacles. The buttresses are at first double, and are then replaced by a single buttress set diagonally. Note the strong treatment of the pilaster buttress between the windows. The effective combination of buttresses and pinnacles at Hedon—one of the most important factors in tower design, the disregard of which spoils the west towers of York—is worth noticing. This is probably the determining feature of the beauty of Magdalen tower at Oxford. The Howden tower is said to have been begun *c.* 1495.

Fountains Abbey (893).—Though it is very lofty, nowhere is bulk less sacrificed to height than in this noble tower. The fenestration is adequate, but not in excess. The buttresses are not set diagonally, which is a distinct gain. Once it was crowned with pierced battlements and pinnacles. The severity of the design is not unbefitting the austere traditions of the Cistercian order for whom it was built; it shews well of what little import is ornament when the greater factors of design are present. It was built by Abbot Huby, 1496-1526. The statutes of the order forbade the building of towers to the churches; it was not till late that the regulation was disregarded at Fountains; and when the tower was built, it had to be put at the end of the north transept. The great Cistercian church of Pontigny, near Auxerre, is to this day without a tower.

Beverley Minster (6).—This magnificent façade, the finest we possess, save only that of Peterborough, which is *sui generis*, was erected about the beginning of the fifteenth century. The towers are individually too tall and thin, but not as employed in pairs; they are helped out moreover by giving great projection to the buttresses, and by raising the central gable considerably above the nave roof. There is a breadth about the design which is most impressive. Though the towers are lofty, they are but of three main stories, each answering to one aisle, the second a ringers' chamber, the third a belfry; the intermediate arcaded stories are of minor importance. If it be pardonable to criticise so noble a design, it is that it is overdone with

ornament; there is not a bit of plain wall anywhere on which to rest the eye; and so excessively rich is the ground story, that no upper gradation of ornament is possible.

Wrexham, Denbigh (894).—This tower is one of the few which, like that of Fountains, are equally satisfactory for bulk and height. It has an elevation of five stories, or of six, if the string flanking the centre of the big window is taken into account, but the third and fourth stories are linked together by the treatment of the niches. From top to bottom it is profusely ornamented, but with an upward gradation; in the two lower stories there are no niches; in each of the third and fourth there are three; while in the fifth there are five. To a large extent the decoration is a glorification of the ogee arch; all the seven windows have ogee dripstones; the massive pinnacles terminate in ogee cupolas; and the ogee arch is repeated over and over again in the panelling. Here perhaps more than anywhere, one notes the hopelessness with which the architect has failed to attack the problem of combining western doorway and western window.[1]

Lincoln Minster (148).—The central tower built *c.* 1200 collapsed in 1237 or 1238, and was then rebuilt by Bishop Grosseteste; the two lower stages of the present tower are his work; originally it had a timber spire, the stump of the central mast of which is still to be seen in the belfry chamber. This spire was taken down and the present lofty upper story was built in 1307-1311; on it was superposed another timber spire, rising to the height of 525 ft.; this was blown down in 1548. The present effective parapet and pinnacles were

[1] This tower is shewn in perspective in *Gothic Architecture in England*, 609.

F. J. Southwold, Suffolk

built by James Essex in good eighteenth-century Gothic. The central tower and the two western towers were vaulted *c.* 1380; the interior of the former has magnificent arcading of the thirteenth century (331). In a central tower spreading buttresses cannot easily be employed; here the buttresses assume an octagonal form, which was repeated later in the western towers. In this tower is "Great Tom," and formerly a peal of six "Lady Bells"; a peal of eight bells hangs in the south-western tower.

The lower stages of the western towers (51) are late Norman, like the gables of the Norman façade (441). The upper stage was added *c.* 1380. These towers also had timber spires, removed in 1807, much to the disgust of the Lincoln townsfolk.

F. B. Redenhall, Norfolk

Canterbury Cathedral: the Bell Harry or Angel Tower (894).—Once it had the gilded statue of an angel poised on one of the pinnacles. Here again the octagonal buttresses are vertical, greatly adding to the apparent loftiness of the tower. The design is one of the many masterly compositions which are the glory of our later Gothic. Inside is a fan vault above the lantern. In the piers and walls are incorporated the substance of the Norman central tower. The present tower was built between 1495 and 1503; it rises to a height of 235 ft.

Lavenham, Suffolk (895).—The church is of great size (182), but is quite dwarfed by the tower, which is most imposing both in height and bulk; it is 141 ft. high. It seems to have been built in the main by the De Veres, for under the belfry and ringers' windows is their cognisance, a mullet.

The coronal apparently is due to the Spring family, whose arms are seen at the top of the pinnacles, which are either incomplete or have been truncated. Though so lofty, it is divided into three stories only. The ashlar work, with its flush tracery of black flints, contrasts effectively with the flint rubble of the walling. The buttresses are faced with ashlar, are not set diagonally, and are of vast projection. With the Lavenham tower may be compared another huge western tower, that of Wymondham, Norfolk, 142 ft. high. Lavenham tower is characterised by a breadth of design lacking in the latter, the western face of which is cut up by strings into no less than seven stages. Vast is the contrast between the tower design of East Anglia and that of Somerset; in no whit does the restriction of ornamental detail injure the towers of the former; they have the stern dignity and strength that are the main features of architectural grandeur.

Earl Stonham, Suffolk (897).—The clerestory, the roof (832), and the tower were added about 1460. This is a characteristic East Anglian flint tower, simple and severe in design, with buttresses set diagonally and running up to the parapet, with flush-tracery bands of flint in the ground-courses and on and beneath the parapet, and with stepped battlements. By exception the stair turret is external; it forces the belfry window out of centre. The clerestory of the nave has admirable flush tracery of flint. The great projection and receding stages of the buttresses much increase the apparent as well as the real stability of the tower.

F. S. Wells : South-west Tower from Cloister

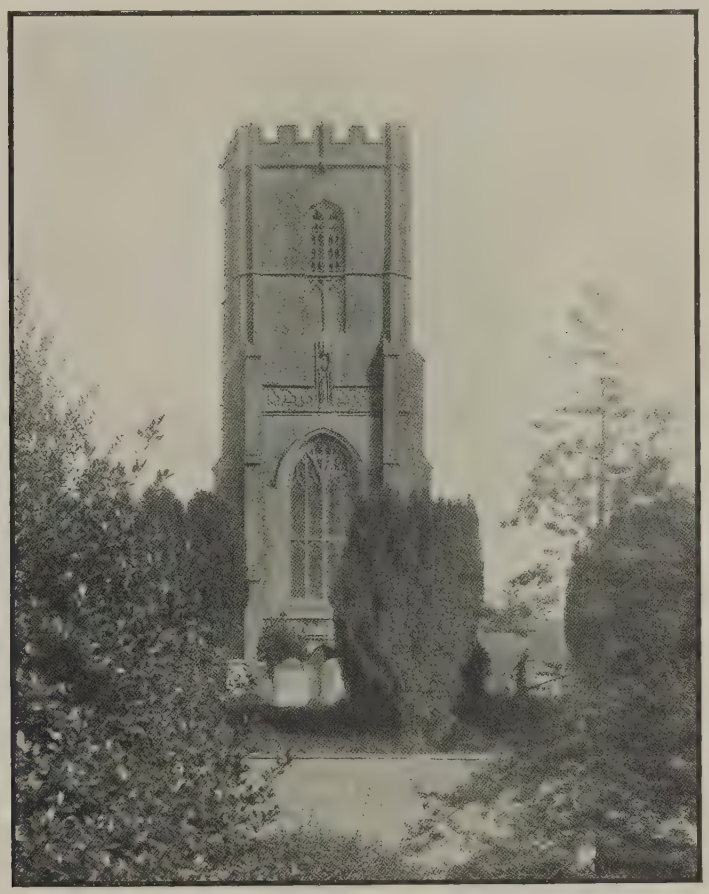
Blakeney, Norfolk (898).—A plainer type of design in flint is seen in the western tower of Blakeney. To the north-east of the chancel is a curious turret; the church stands high above the sea, and the turret may have contained a light to guide sailors into the little port. The chancel appears to be rather late in the thirteenth century, and has an east window of seven graduated lancets; above its vault is a chamber, to get headway for which the walls have been heightened; the weatherings of a loftier roof may be seen.

F. S. Wrington, Somerset

Mildenhall, Suffolk (899).—Less massive than in normal East Anglian design, this lofty tower—112 ft. high exclusive of a modern corner turret—like that of Redenhall, excels in elegance of proportions. It is to be noted that the buttresses are not set diagonally, neither are they carried up to the battlements. It was refaced at a recent restoration. Inside is a ringers' gallery carried by a fan vault of stone. The roof of the nave is one of a magnificent series which probably originated in this district, and of which Lakenheath, Suffolk, and Isleham, Cambridgeshire, possess fine examples (804). The remarkable east window of

the chancel, asserted to be unique, is copied from that of Prior Crauden's chapel at Ely.

Covehithe, Suffolk (900).—This is the western tower of a church even larger than its neighbours at Southwold, Blythburgh, Walberswick, and Lowestoft; inside its roofless nave is a thatched hut which now serves the small remains of the parish, most of it washed away by the sea. Windows are scarce, freestone having to be brought from afar. The tower is



G. W. S. Shepton Beauchamp, Somerset

impressive from its great height as well as for its bulk and solidity. The buttresses are set diagonally, and the upper stories of the church are in retreat. Most of these great Suffolk towers belong to the first half of the fifteenth century.

Southwold, Suffolk (901).—This is another of the huge towers of Suffolk, the grandest of all perhaps being those of Lavenham, Stoke-by-Nayland, Southwold, and Eye. All are imposing both in height and mass. All are of flint rubble, in which are worked

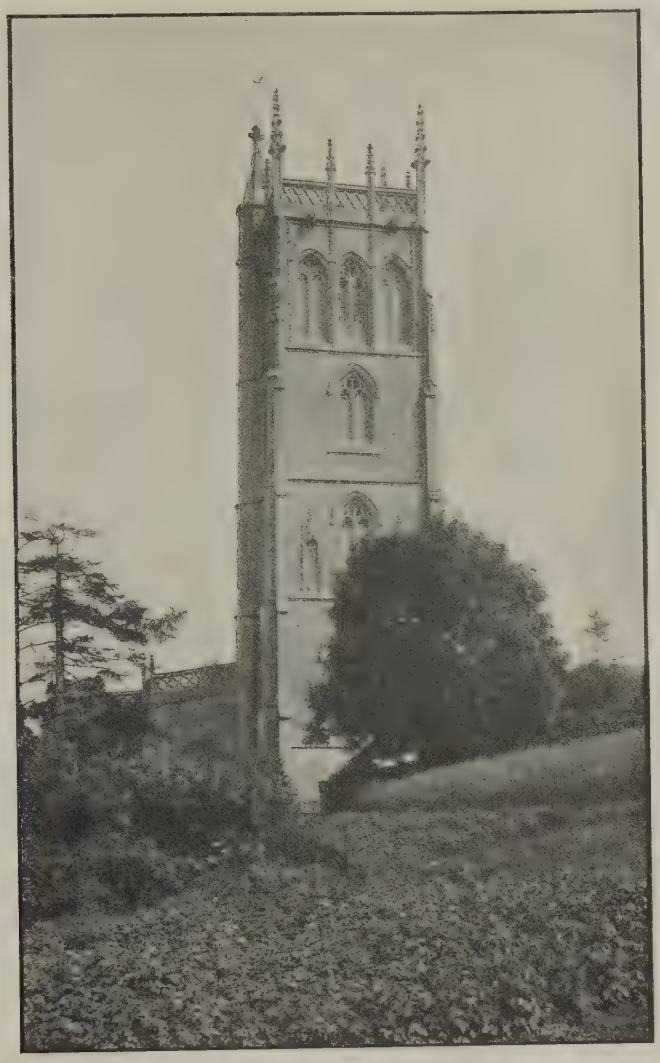
traceried patterns set in freestone. At Southwold freestone is used more freely than in the churches enumerated above, and much more is made of the fenestration. The ringers' story is left plain as a relief to the rich ornamentation of the ground story and belfry. The

F. J. A. Shepton Mallet, Somerset

buttresses are diagonal. Several of these towers are flat-topped, but in some cases pinnacles were certainly intended.

Redenhall, Norfolk (902).—This is one of the finest towers in Norfolk, and has one of the very best peals of ancient bells in England. The design is somewhat exceptional for

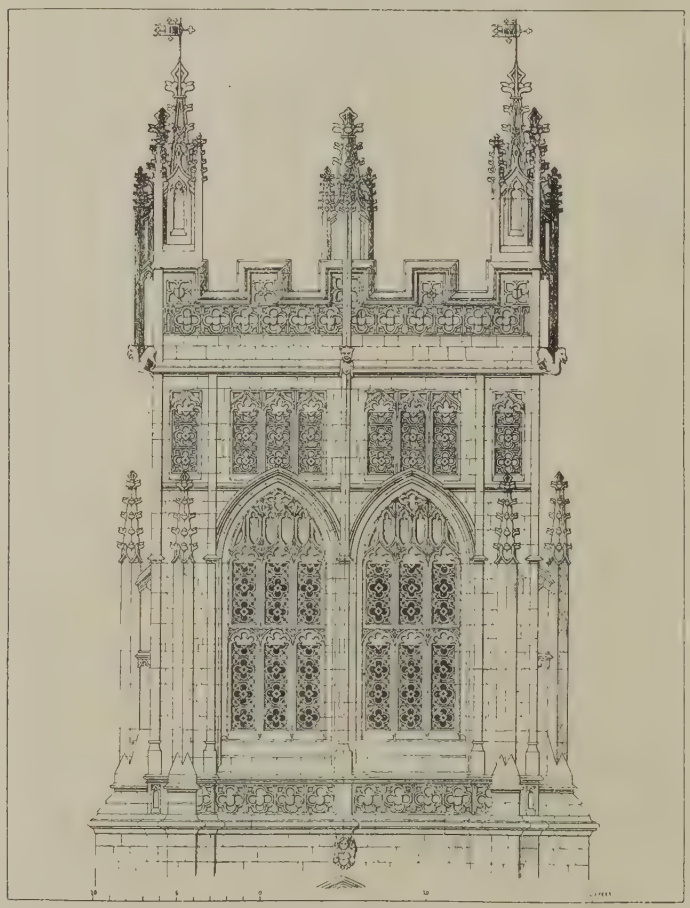
Norfolk, as it has four instead of the normal three stories; the two central stories being a foil to the other two; its buttresses, too, have little spread, so that there is more appearance of verticality and less pyramidal effect than usual. Its proportions are very fine. Though



F. J. A. Winscombe, Somerset

massive, it gives the idea of height rather than bulk. The stepped battlements often appear in East Anglia. Here again is admirable flintwork. Other fine Norfolk towers are those of St. Peter Mancroft, Norwich, Sall, Cawston, Aylsham, Fakenham, Hingham, Deopham, Cromer, Walcot, Happisburgh, Winterton, Worstead, Terrington St. Clement.

Wells Cathedral: Central Tower (142).—This tower has had a curious history. Originally, like the central tower of Lincoln, it barely overtopped the roofs. On this substructure of *c.* 1230 there was built in 1321 a central tower. To make this as light as possible, it was built with hollow walls tied together by bonding stones and iron ties. Nevertheless, the additional weight caused its piers to sink into the ground, tearing the tower away from the church. To remedy this, a stone screen was built across the eastern arch of the tower, and



J. C. North Petherton, Somerset

strainer-arches, similar to those at Salisbury and those formerly existent in the transepts of Glastonbury, were inserted in the other three arches (437). The central tower itself, again probably for lightness, was built with three pairs of immense lancets, extending almost the whole way down to the roofs of the church.[1] It had probably only four corner pinnacles, and

[1] See restoration of original tower in Sir Charles Nicholson's paper in the *Journal of the R.I.B.A.*, 27th July 1912.

seems to have been intended to carry a spire, probably of wood. The screen and strainer-arches proved so efficacious that it was found safe later on to modify the design of the tower, and to impose more weight on the piers. So the tower was altered into its present shape; the original single stage being divided into two stages, and the lower of the two blocked up with solid panelling. Moreover, the present traceried parapets were erected with eight statues in tabernacles and twenty subsidiary pinnacles. Lastly, a stone fan vault was

G. W. S. Huish Episcopi, Somerset

constructed under the tower at the level of the summits of the four great arches of the crossing. This tower, in its later modified form, had great influence on the tower design of Somerset.

Wells Cathedral: South-Western Tower.—The lower part of this tower forms part of the west front built by Bishop Joscelin between 1220 and 1242. This conditions the buttress design of the upper portion, which was added by Bishop Harewell, probably between 1367 and 1386. (It was copied by the executors of Bishop Bubwith in the north-western

tower, 1407-1424.) Like the central tower as modified, the upper portion consists of a single story subdivided into two stages, of which the upper one is fenestrated and the

R. P. B. Dundry, Somerset

lower one panelled solid. Owing to the uncertainty of the date of the alterations in the central tower, it is impossible to say in which tower this design first appeared; it is hardly likely, however, that the work in the central tower can be the earlier; the corner pinnacles

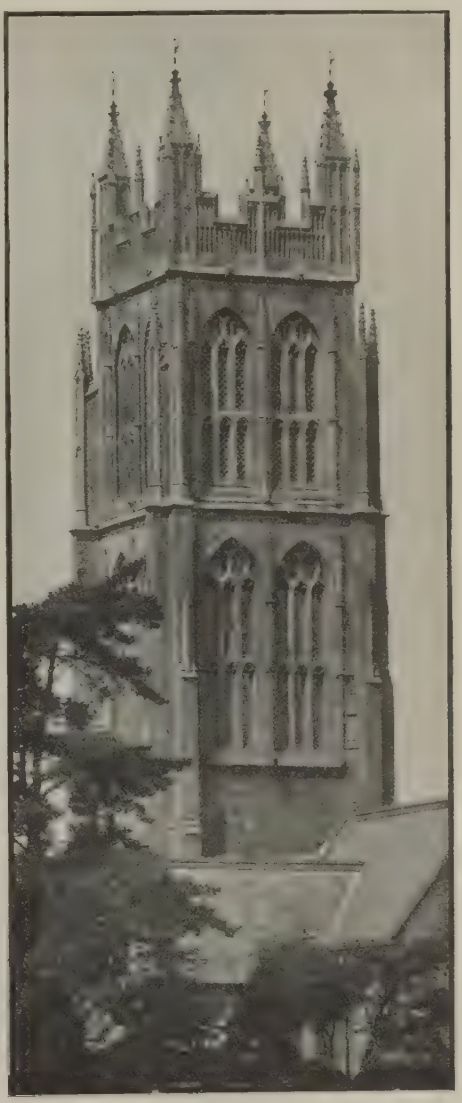
of the latter seem to be reproductions of the buttress finials of the south-western tower. Probably little, if any, interval separates the two works (903).

St. Cuthbert, Wells (23).—From its combination of height with bulk, this tower is very impressive. The coronal is an organic member of the tower below; the pinnacles repeat the design of the central tower of the cathedral, but are far more imposing, owing to their height and bulk and the absence of minor pinnacles. The fenestrated and panelled stages repeat the design of the cathedral towers. The whole design of the tower is studiously simple and quiet; as is seen in the treatment of the buttresses, in the absence of a hoodmold to the windows, and the attenuation of the pilaster buttress between them; also the turret of the vice, which by exception is at the north-western corner, plunges into the wall half-way up, instead of being carried up to and above the parapet. The buttress design is strong and massive. Altogether a very grand tower.

Wrington, Somerset (904).—This is a sister tower to that of St. Cuthbert's, Wells, but is not quite equal to it. The design of the buttresses is lighter and less satisfactory, as also that of the pinnacles; the pilaster buttress between the windows runs up to a toy pinnacle. The vice is in a south-eastern turret. Note the bell-cote for the sanctus bell, and the perforated parapets of the nave and porch. Here, as in many fine Somerset churches, the chancel had been rebuilt on mean lines before the great building period arrived which gave us the noble naves and towers.

Shepton Beauchamp, Somerset (905).—This tower also is a far-off derivative from the south-west tower of the cathedral through St. Cuthbert, Wells, Wrington, and Evercreech. With somewhat unhappy effect a string-course is ruled across the upper window, and solid battlements are substituted for a pierced coronal.

Shepton Mallet, Somerset (906).—This tower is of great importance, for in the opinion of Dr F. J. Allen, "it is the earliest of the triple-window towers; and from its design were developed all the other triple-window towers and also some of the double-window ones." It was designed for a spire, begun, but never completed. With a view to a spire, the buttresses were given great projection, and consequently there are very effective shadows. In the upper



Chewton Mendip, Somerset

portion of the buttresses is a reminiscence of the buttresses of Harewell's tower in the cathedral: we may then probably attribute the tower of Shepton Mallet to the last quarter of the fourteenth century. The stair turret rises full height on the north side; on this side

R. P. B. St. Mary Magdalene, Taunton, Somerset

the triple windows of the belfry are contracted in order to get them in. (The same course is adopted with the double windows of St. Mary Magdalene, Taunton.) Only the central one of the window triplet is pierced. The treatment of the lower stories is characteristic of

Somerset towers: the bottom story contains on the west a doorway and big window, the north and south walls being left plain; in the second story, on the west, there are niches with statues, and on the other sides single windows; while the third story has single windows all round; this story is often omitted in the smaller towers.

F J. A. Yate, Gloucester

Winscombe, Somerset (907).—This is a variant of Shepton Mallet. The buttresses are much less massive, and the coronal is less independent of the substructure, and as usual when that is the case, is given a greater elaboration of parapet and pinnacles: the minor

pinnacles are a continuation of the pilaster buttresses. The second story has eastern niches. The proportions of this tower are singularly beautiful. Here, as at Wrington, are elaborate

F. J. A. Cullompton, Devon

pierced parapets to the nave. A charming stair turret leads to the roofs and the rood screen. As is usual in Somerset and Gloucester, the rectilinear tracery of the windows is of fine design.

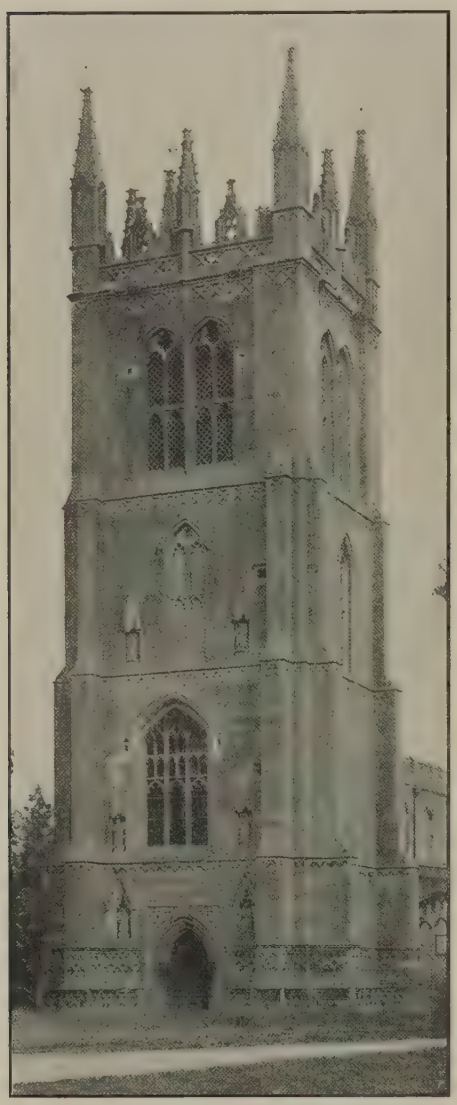
North Petherton, Somerset (908).—Next to the cathedral towers of Wells and that of Shepton Mallet, that of the Temple church at Bristol seems to have had exerted most influence on Somerset design; unfortunately its coronal has perished. At North Petherton the Bristol features are the panelling above the belfry windows, the horizontal bands of quatrefoils, the continuation of the two chief string-courses round the buttresses, and the pilaster buttress continued up into a highly elaborated central pinnacle. The tower is lofty and of fine proportions. The coronal is independent of the tower and employs battlements.

Huish Episcopi, Somerset (909).—This is a sister tower to that of North Petherton; both derive from the tower of the Temple church, Bristol, the hoodmolds of the belfry windows, as also their tallness and transoms, and the horizontal bands of quatrefoils and trefoils; both are three stories high, and have "Somerset tracery" in the windows. The stair turret rises to the level of the parapet, but not above it. The buttresses have much projection; the coronal is independent. There is less ornamental detail in the Huish Episcopi tower than at North Petherton; in the latter the ringers' story is made a foil to the belfry. These are two of the finest towers in the county.[1]

[1] A curious bit of construction is common in Somerset towers. In a few cases the buttresses of the eastern side of a western tower are continued through the nave roof to the ground. Often, however, they are merely supported by heavy corbels on either side of the tower arch; these corbels are sometimes plain blocks, sometimes they are chamfered or molded, sometimes, as at Curry Rivel, they are carved into large heads: in a few cases, *e.g.*, Langport, the corbels are supported by or built into the pier-arcades. At Huish Episcopi, however, the eastern buttresses of the tower have no visible supports and are giving way; they have been clamped with iron. It may be due to this bad method of construction that so many of the towers have failed; *e.g.*, St. James and St. Mary Magdalene, Taunton, Isle Abbotts, and Curry Rivel.—G. W. S.

W. H. B. Gloucester Cathedral

Dundry, Somerset (910).—This tower was built by the Merchant Venturers of Bristol, *temp.* Edward IV. It is tall, like the tower of St. Mary Magdalene, Taunton, and even more slender; but it is strengthened by the outward spread of the buttresses, by employing only single fenestration, and by curtailing the dimensions of the upper windows. In several towers of this type the pinnacles are divided into as many stages as there are stories in the tower below; in this case four. In all the Somerset towers the buttresses are given as little spread as is consistent with stability, and are seldom set diagonally. The treatment of the angles is similar to that of the Wisbech tower (856).



G. G. B. Titchmarsh, Northants

Chewton Mendip, Somerset (911).—This tower is one in which there is no gradation of fenestration, there being a pair of windows in each story, as in the tower of Gloucester cathedral. The belfry windows have "Somerset tracery." At each corner of the tower is a pair of buttresses. The coronal is independent of the design of the tower below.

Taunton, St. Mary Magdalene (912).—To gain extra height, this tower, like that of Dundry, is given four stories. Each story has double fenestration. The stair turret is external and does not rise above the parapet. The design of the coronal is independent of that of the tower. Detached pinnacles are employed in the belfry stage and coronal; in the latter they rest on animal figures. The buttresses are not set diagonally. Charming niches occur both on the tower and the south porch; the latter bears the date 1508. This tower was rebuilt in 1862.

Ilminster, Somerset (872).—This tower copies the central tower of Wells cathedral, in its defects as in its merits. Being central towers, both have to be broad, and triple fenestration results: the two stages, however, are less intimately connected than in the Wells central tower, St. Cuthbert, Wells, and Wrington. The pinnacles derive from the cathedral tower, but are less imposing than those of St. Cuthbert's: this is compensated by running up minor pinnacles. The faces of both towers, as also of Evercreech, are rather flat and deficient in shadow effects. At Ilminster this is partly compensated by the great prominence given to the stair turret. The windows have "Somerset tracery." The transept has a panelled parapet of singular beauty.

Yate, Gloucester (913).—This is a tower fenestrated as at Chewton Mendip. It is of

three stories, but the windows are so much elongated that it has rather the proportions of a four-storied tower. It has a Somerset coronal, but not independent; and at each corner there is but a single buttress, set diagonally, and not the usual Somerset pair of buttresses; a strong pilaster buttress runs up between the belfry windows, as at Titchmarsh and St. Cuthbert's, Wells. The stair turret is picturesquely carried up above the parapet, as at Kingston and Staple Fitzpaine, Somerset. In the distance is seen the sanctus bell-cote.

Cullompton, Devon (914).—This is a tower of four stories. It has the independent coronal of Somerset; but there is no west window to the ringers' chamber, and the design of the two bottom stories is conditioned by the presence of panels of sculpture. An inscription below has the date 1545. The belfry window has "Somerset tracery," but the wide spread of the buttresses destroys the insistent verticality which is characteristic of Somerset towers. The chapel on the right is that built by John Lane, clothier, in 1528 (364).

Gloucester Cathedral (915).—This central tower is much inferior in height to those of Lincoln and Canterbury, but owing to its bulk, is as effective as either. It was erected *c.* 1455; and may well have contributed to supply a motif to the many towers that were built with more florid coronals in Somerset and Gloucestershire some fifty years later. Here there is no gradation of ornament; the whole of the upper stories are bespattered with panelling and niches. There is double fenestration. The design of the tower is repeated in the pinnacles, as at Dundry. Among other fine towers of Somerset type, though outside Somerset, may be mentioned St. Stephen's, Bristol, St. Mary, Cardiff, and Great Driffeld, Yorkshire.

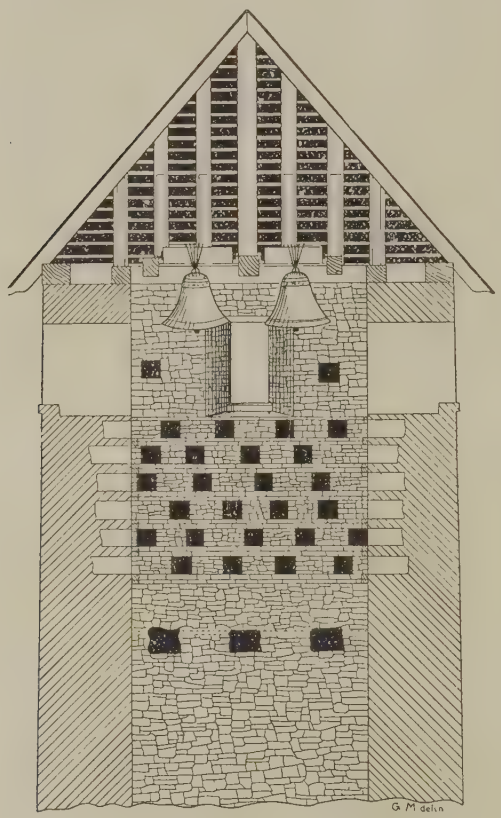
Titchmarsh, Northants (916).—In this tower four stories are gained by separating off the portion in which the west doorway occurs; unfortunately this gives a squat bottom story. The coronal is independent of the main buttress system, but a pilaster between the belfry windows

G. G. B. Norton-sub-Hamdon, Somerset

F. B. Sarnesfield, Hereford

is continued to form the central pinnacle. The main buttresses are stopped too soon; at the foot of the belfry story. The tower is heavily scored with horizontal lines in the form of seven carved ground-courses and strings. On the western face three pairs of niches occur; and small quatrefoiled openings light an internal staircase.[1]

Sarnesfield, Herefordshire (917.)—Numerous examples of mediæval pigeon-houses survive; some of stone, some of brick, some of wood,[2] *e.g.*, at Norton-sub-Hamdon, Somerset (917). Churches also were utilised as dovecots. Thus at Sarnesfield, Herefordshire, where the tower seems to have been built between 1200 and 1250, the tower walls are about 3 ft. thick and contain about 108 nesting holes, built at the same time as the tower; they are about 6 in. square and enter the wall at an angle to a depth of 15 to 18 in., growing larger as they pass inward: between each tier is an alighting ledge of stone from 2 to 4 in. thick. There is a dovecot in the north-west tower of Selby abbey, where the original holes were of timber framework. At Birlingham, near Pershore, there is a western tower of the fifteenth century, in which the middle story is arranged as a pigeon-house: and also at Collingham Ducis, Somerset; in both these there is an alighting ledge beneath a window of the middle story. An illustration in Neale's *Views of Collegiate and Parochial Churches* shews pigeons flying through a narrow slit in the gable, provided with an alighting board, into the space above the vault and beneath the roof of the chancel: there were similar dovecots above the chancels of Marlborough, Wiltshire, Elkstone, Gloucestershire, and Overbury, Worcestershire; in this last there were



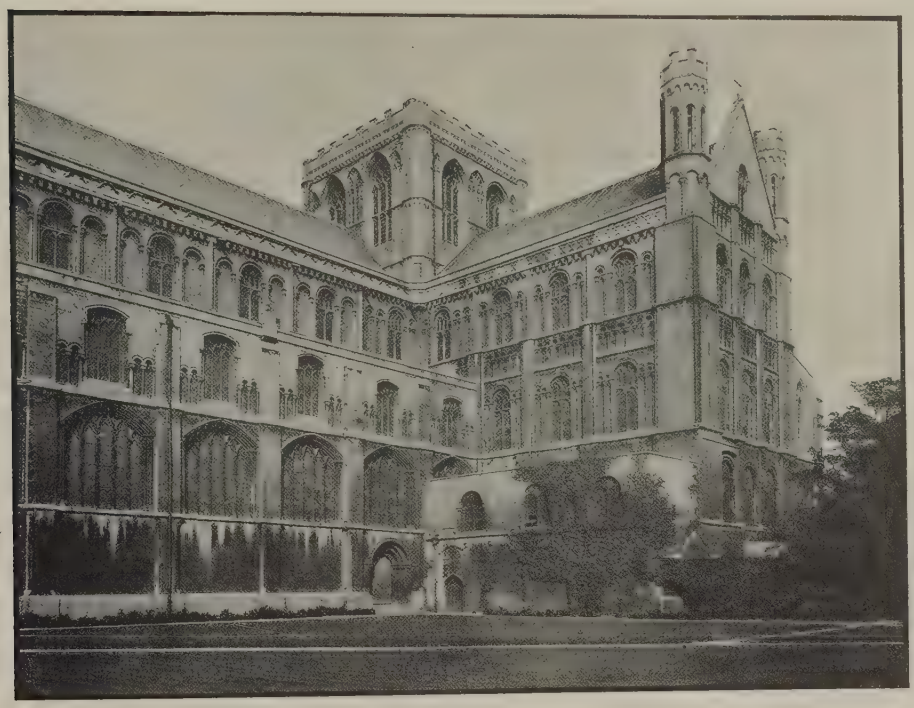
Section through the upper portion of Sarnesfield Church Tower, shewing the North Wall of the Columbarium, and original site of the two Bells. The height of the Tower from the floor to the wall-plate is 34 ft.

[1] All Saints', Derby, deserves mention—a noble tower in a district where such towers are uncommon; also Great Ponton, Lincolnshire. There is some rather good tower design round Grantham, Newark, and Nottingham, *c.* 1480; Hough-on-the-Hill (belfry), Beckingham, Hawton, Rolleston, Selston, Elvaston, are the chief examples. Devonshire has a host of good towers, *e.g.*, Tiverton, Totnes, St. Andrew's, Plymouth, as well as a number of plain but lofty towers with stair-turrets (as at Totnes) in the centre of the south wall, *e.g.*, Little Hempston, Berry Pomeroy, Harberton, and many more. Of granite towers, Probus and St. Buryan, Cornwall, deserve mention; and in Yorkshire and along the lower Trent there is much plain but respectable design in magnesian limestone—Bubwith, Bolton Percy, Fishlake, Haxey, Gainsborough. Hatfield and Rotherham, Yorkshire, have noble central towers.—A. H. T.

[2] See illustrated paper by Mr Alfred Watkins in the *Transactions of the Woolhope Naturalists' Field Club*, 1890, pp. 9-22; and for 1904, p. 263.

nesting holes for 200 pigeons. In Yarmouth church there was a dovecot between a chapel vault and roof; and at Stanley St. Leonard's, Gloucester, over the north transept. At Issac, in the Dordogne, Mr George Marshall noted an apsidal chancel the walls of which had been raised so as to provide room for five rows of nesting holes all round.[1]

[1] See pages by Mr J. T. Micklethwaite in *Archæological Journal*, xlv. 374; T. F. Thiselton Dyer's *Church Lore Gleanings*, 67; Mr George Marshall in *Woolhope Transactions*, 1904, p. 263, and Addy's *Church and Manor*, 407-409.



H. P. Peterborough Cathedral from South-west

SECTION II.—SPIRES

Unlike the tower, the spire has no traditions behind it, pagan or secular. It is unknown to Greek and Roman architecture; it only makes its appearance in the last days of Romanesque; and though a few successful experiments in Classic were made, *e.g.*, Wren's spire of St. Mary-le-Bow, Cheapside, it is, like window tracery and the cross-ribbed vault, pre-eminently associated with Gothic architecture. Nor, again, otherwise than exceptionally, and that mostly in modern times, has it been employed in secular and civil architecture; it is indissolubly associated with religion. Being therefore the special crown and characteristic of Christian architecture, that is to say, Gothic architecture, poet after poet has found an exoteric symbolism in the spire

F. B. Wickham Market, Suffolk

"Star-high and pointing still to something higher."

This beautiful termination, however, of western or central tower was by no means in universal favour. If anyone knows the spires of England and Normandy, adding perhaps the late open-work spires of Strassburg, Ulm, and Freiburg-im-Breisgau, he will lose little by lack of knowledge of the rest. And even in England there are wide and important districts such as East Anglia and Somerset, where spires are so infrequent that these parts of the country may be left out of account. In Norfolk and Suffolk the reason for the rarity of stone spires is obvious; the building material there is chalk and flint, with window arch and jambs and buttress quoins of freestone brought from far-away quarries in Northamptonshire and elsewhere. Now a spire cannot be built of flint and chalk; it must be freestone through and through; and in East Anglia a whole spire of Barnack freestone would have been a very costly affair. The case with Somerset is different; here excellent freestones abound; and one of the earliest of the great Somerset towers, Shepton Mallet (906), was designed for a spire, the lower courses of which indeed were built;

but the tower looked so well without a spire that apparently it was thought best to let well alone; Yatton also possesses an incompleted spire. In no district which did not possess excellent building stone, which for a spire should be soft and easy to work when fresh from the quarry, but when weathered, hard and non-porous, would there be consummate mason-craft, as ambitious too as consummate, which would venture on what looked so perilous as a spire. Not that spire building is really perilous or even difficult; the stones of the spire are laid in horizontal beds just as in a wall; there is not much difficulty in constructing scaffolding, which

F. B. Hemel Hempstead

F.B. East Harling, Norfolk

may be internal to the top of the tower and external for the spire; and the higher the builders go, the nearer the sides of the spire converge and the easier is the task. Nevertheless one cannot stand beneath such a spire as Louth or Grantham without feeling amazed and appalled at the venturesomeness of those who dared to poise the heavy capstone 300 ft. above the ground. No wonder that when Louth spire was finished there were great rejoicings that at last it was up, and that Louth had beaten its rivals, Grantham and Newark. "This year" (1515), writes John Cawood, parish clerk of Louth, "the weathercock was set upon the broach, there being there present William Aylesby, parish priest, with many of his brother

priests, hallowing the said weathercock and the stone that it stands on, and so conveyed unto the said broach. And then the said priests sang TE DEUM LAUDAMUS with organs. And then the churchwarden gart ring all the bells, and caused all the people there being to have bread and ale. And all for the love of God, Our Lady, and All Saints." As a rule the most numerous and the finest spires are found in the districts which possessed that fine freestone, oolitic limestone, *e.g.*, Mid-Lincolnshire, Northamptonshire, Oxfordshire; not that spires of the first rank were not built of other materials, *e.g.*, the red sandstone spire of St. Michael's, Coventry.

F. B. Weobley, Hereford

TIMBER SPIRES

In districts where stone was scarce or unsuitable, if a spire was desired, it had perforce to be of wood—of oak. Sometimes it was covered with oak shingles, sometimes with lead. Of shingled roofs Bosham (788), Shere (248), Merstham (216) are examples; of leaded roofs Hemel Hempstead, Braunton, Ryton, Wickham Market (920), St. Margaret, Lowestoft (2). Several varieties of timber spires may be discriminated.[1]

(*a.*) Every tower required some sort of roof, and it is evident from illuminations in manuscripts, that it often consisted of a very low square spire, such as is common to this day in village churches, especially in Sussex, *e.g.*, Ovingdean (235), Steyning (888), and Yapton, Sussex.

(*b.*) In later days there was often erected in the centre of the tower roof a small wooden pinnacle covered with lead; *e.g.*, Chelmsford, Essex,[2] and Baldock, Herts.; very often quite picturesque. Occasionally the pinnacle developed into quite an elaborate spirelet or group of spirelets, of which charming examples are to be seen at Swafiham and East Harling, Norfolk (921); the date of the latter is said to be 1450.

(*c.*) Sometimes the eight sides of the spire descend straight to the tower; *e.g.*, Chesterfield, Harrow, and St. Margaret, Lowestoft (2); when the tower is octagonal, as at Wickham Market, Suffolk (920), the effect is not unpleasing. Of this type the

[1] The classification is in the main that proposed by Mr Lawrence Weaver in the *Journal of the Royal Institute of British Architects*, 24th March 1906.

[2] Illustrated in Wickes' *Towers and Spires*, 20.

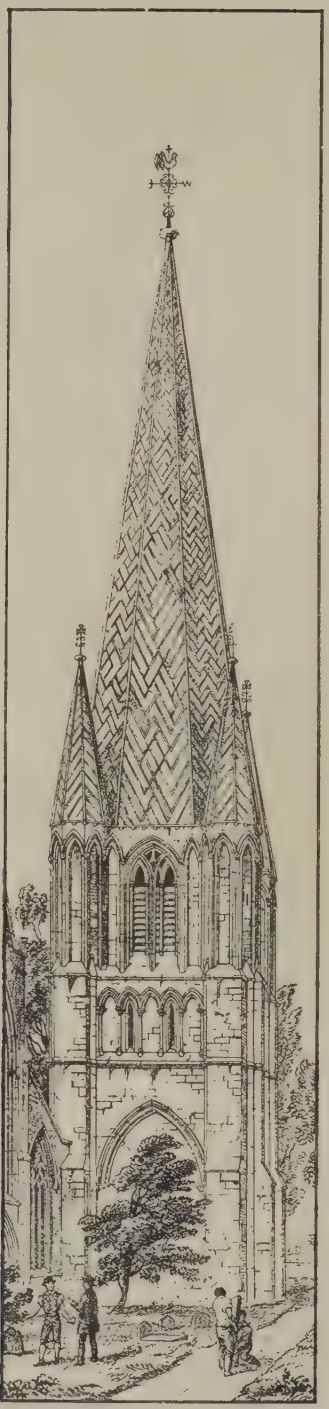
timber spire of Sutton St. Mary (924) is a remarkable variant, for at the angles it has lofty pinnacles; this spire may belong to the early years of the thirteenth century.[1] It is 150 ft. high; the pinnacles are inclined inward; at the top is a pommel or bowl in which, no doubt, were placed relics to avert lightning stroke. The present dingy appearance of the spire is due to modern leading; old lead, as at Hemel Hempstead and Minster, Thanet, has a silvery patina.

(*d.*) Then come the two very common types in which the design is dictated by a peculiarity of construction, viz., that in each some feet above the tower a horizontal octagonal collar is set up, on which are supported the upper timbers of the tower. This collar has itself, of course, to be supported in some way, and the support may be provided in two ways. The first was to employ a post resting on one corner of the tower and sloping up to and supporting the collar; thus the latter was supported at four points, and four of the eight sides of the spire were cut at the base by the four diagonal posts; to protect the exposed parts of each post the framework of the side of the spire and its lead covering were made to cover and flank it. This produced at the corners of the tower what looks like and may be designated, though incorrectly, a "broach"; and a timber spire so constructed may be styled a *timber-broach* spire. Examples occur at Braunton and Barnstaple, Devon; Godalming, Surrey; Ickleton, Cambridge; Swymbridge, Devon; Almondsbury, Gloucester; Blackmore, Essex (925); all these have dripping eaves and no parapet; an example with a parapet occurs at Hemel Hempstead, Hertford (921). These *timber-broach* spires were covered with lead more often than with shingles.

F. B. Ford, Sussex

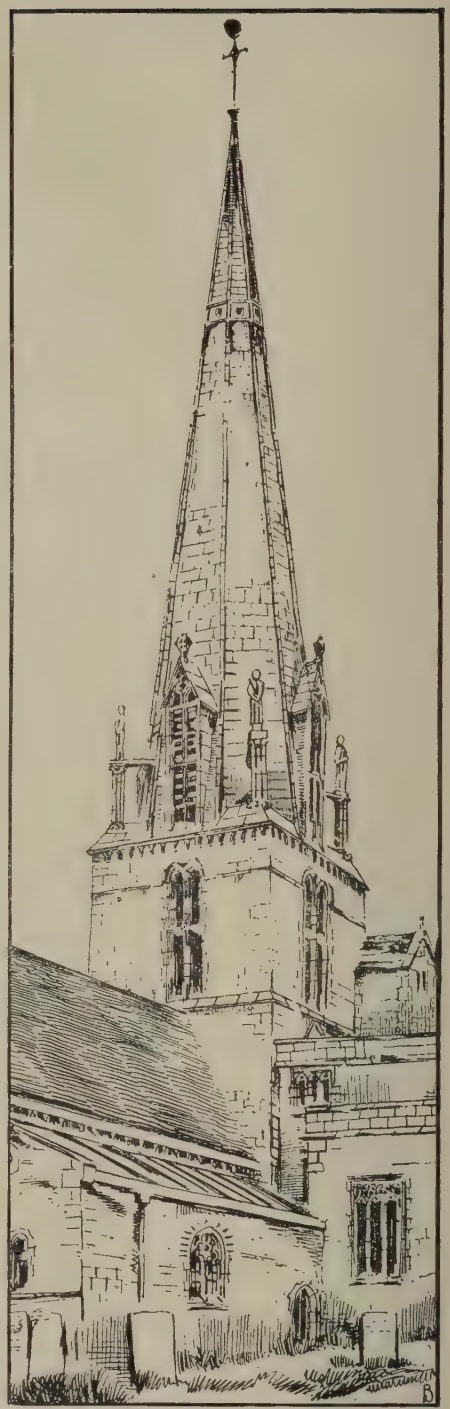
(*e.*) Another mode of construction was more frequently employed. In this *two* sloping posts were set up at each corner of the tower, which thus, if the tower was square, gave support to the octagonal collar at eight points, instead of at four—a great improvement. Here also the exposed parts of the eight posts had to be protected from the weather, and the fact that four pairs of posts had to be protected, and not four single posts, made it necessary to design the base of the spire in the fashion that is seen at Merstham (216) and Bosham (788) This type of timber spire is usually covered with shingles. It has been styled the "collar type," but the term

[1] See drawings by H. T. Austin in *Spring Gardens Sketch Book*, 1874, and by F. Hooper in *Architectural Association Sketch Book*, 1881.



C. W. Sutton St. Mary, Lincolnshire

C. W. Bythorn, Hunts.



B. N. Bampton, Oxon.

is not satisfactory, as the previous "broach" type also has a collar; it may be suggested that as four of the sides of the spire have a sort of straight chamfer, such a spire may be designated a timber-chamfer spire.

It is remarkable that this "chamfered" spire of timber was sometimes, though rarely, copied in stone, *e.g.*, at Etton, Northants;[1] Lostwithiel, Cornwall; Seaton, Rutland; and Bythorn, Hunts. (924).

Wooden turrets supported from the floor are common in timber districts, *e.g.*, Ford, Sussex (923). A small turret like this might be supported by the tie-beams of the roof; but in more important examples the turret has almost always four vertical angle posts framed into massive horizontal beams or sills lying on the

F. R. T. Blackmore, Essex

floor; the angle posts themselves being framed together and braced above; the turret usually finishes with a timber spire.

In Essex four methods of construction of timber steeples were in vogue.[2] (1) Sometimes, as at Aythorp Roding, the belfry and spire are carried mainly or entirely on horizontal beams resting on the wall plates of the nave roof. (2) Sometimes, as at Laindon, the framing starts from the floor inside the nave, and is carried up through the roof to form the belfry and spire, but is kept free from the walls or roof of the nave. (3) Sometimes, as at Blackmore, where the tower and spire are built outside the western wall of the nave, the lower part of the tower is strengthened by arched or diagonal framed beams, projecting outward and making on plan the

[1] Illustrated in *Gothic Architecture in England*, 620.

[2] E. Godman's *Mediæval Architecture in Essex*, p. 31.

appearance of an aisle round the tower (925). (4) Sometimes, as at Upminster, a wooden belfry and spire are placed on an earlier stone tower, but are supported inside from the ground level by framed beams.

In addition to the above main types, there are others which one can only characterise as "freaks"; *e.g.*, at Pembridge and Kington, Herefordshire (926), and Brookland, Kent (927).

Not only the parish churches, but many of the churches of monks and canons originally had timber spires. At Old St. Paul's the central tower was 260 ft. high, and the timber spire another 260 ft. It was finished, according to Stow, in 1221; it was burnt down in 1561. The bell-houses of Old St. Paul's, Salisbury and Westminster abbey[1] had timber spires; so also had St. Bartholomew's, Smithfield. At Lincoln the two western towers of the minster retained their timber spires till 1807, when they were taken down, much to the indignation of the citizens; the central tower had a spire 524 ft. high, even loftier than of Old St. Paul's; it was destroyed by a storm in 1584. At Hereford, Tewkesbury, and Rochester the central towers had timber spires; the last of these has been recently replaced; and they were also present at Exeter *c.* 1620 and on western towers at Canterbury, Peterborough, Durham, Ely, and Reculver, Kent; all the three towers of Ripon minster had timber spires; doubtless there were many others of which we have no record.[2]

F. B. Kington, Hereford

STONE SPIRES

In England, as in Normandy, the earliest type of spire is a low square pyramid, whether of wood or of stone; of the latter, the earliest example in Normandy is that of the village church of Thaon; where the spire of the central

[1] Illustrated in Walters' *Church Bells of England*, p. 63.

[2] On loss of timber spires see Lethaby's *Leadwork*, chap. iv.

tower is of the eleventh century. Of a date possibly as early are the low stone pyramids of Penmon, Anglesea (928), and Priestholm or Puffin Island, near Anglesea. After these there is a great gap, and we suddenly arrive at the spire of Barnack, Northants,[1] which appears to be early in the thirteenth century (929). Now in Northern France there were two schools of spire builders; that of the Île de France and that of Normandy; the former is represented by such examples as the spires of Holy Trinity, Vendôme, Senlis cathedral, and the south-western spire of Chartres. The characteristic of these is the insertion of an additional stage, an octagonal drum, between the square tower and the octagonal spire. It is highly improbable that the builders jumped at once from the design of the low square pyramid of Penmon to that of the complex structure of Barnack; the latter is only explicable as of French inspiration. The spire of Barnack led in later days to an interesting crop of local variations, sometimes without a spire, as at Fotheringhay (19) and Lowick (889), sometimes with a spire, as at Exton (947).

W. M. Brookland, Kent

In Normandy and England the normal steeple[2] has not three, but two stories. Of the stone spires the earliest is what we may call for distinction the Oxford type, because it occurs most frequently in Oxford and Oxfordshire.[3] The chief characteristics of this spire are that it has dripping eaves, and therefore is without a parapet; secondly, that its angles are weighted with tall massive pinnacles, which in Normandy are highly elaborated; thirdly, that it has no spire lights;[4] fourthly, that it has large dormer windows on the cardinal sides, the object of which is mainly decorative, but which are also of value in lightening the load on the belfry windows below. Of these spires the earliest on a large scale are those on the western towers of St. Stephen, Caen; they are probably early in the thirteenth century (930). Their magnificent design excited, and rightly, universal admiration;

[1] The semicircular arch is employed in the belfry windows; but this arch was in common use in Northants throughout the thirteenth century.

[2] It is convenient to restrict the term *steeple* to the tower and spire combined; but it is often used loosely of the tower only or the spire only.

[3] For the Oxford type see Mr H. L. Honeyman's essay on "The design and construction of belfry stages and spires in stone and brick" in the *Journal of the R.I.B.A.*, 29th July 1911.

[4] The term *spire lights* should be restricted to such windows in a spire as are not in its base.

and copies of them may be seen throughout the whole province, among the most beautiful being those of Bretteville (931) and Bernières (931). In England we have few pure examples of this type of spire; *e.g.*, those of the cathedral of Oxford (932) and the parish church of Witney, which is not far away, and is plainly a later and improved version of it (938); also of Bampton (924) and Shipton-under-Wychwood in the same district. The Oxford spire also seems to be early in the thirteenth century, and some might assign it priority; but it is more likely that the Oxford design hails from Caen than the Caen design from Oxford. The Caen design would not have made such a host of disciples in Normandy had it not been indigenous; while the fact that the Oxford design made few converts in England is a pretty sure indication that it is a foreign innovation. Later on the Oxford design gained a number of adherents, especially in the district of the Oxford oolite; without dripping eaves and with a parapet it is seen at Bloxham,[1] Witney (938), and Adderbury, Oxfordshire (933), where there is a single pinnacle on each angle of the tower, while there are double pinnacles at King's Sutton (940), Middleton Cheney, Northants, St. Mary, Oxford (940), and Salisbury cathedral (943). At St. Mary Redcliffe, Bristol (948), and in the south-west spire of Peterborough (944), there is still greater divergence from the Caen type, there being parapet, pinnacles, and a row of spire lights.

J. L. Penmon, Anglesea

As to the next class of spires, the *broach* spires, there can be no doubt whatever as to their origin; they are indigenous and peculiar to England; they are in fact nothing but a stone version of that type of timber spire which is to be seen at Bosham (788). It has been held, indeed, that the timber broach spire is copied from the stone one; but it is inconceivable that a stone-mason could have evolved out of his own brain such a strange design as that of the broach spire; whereas the design of the timber broach, as we have seen, grew naturally out of structural exigencies. The characteristics of the stone broach spire are that it has dripping eaves and

[1] Of these Bloxham spire rises from an octagon and is late in date.

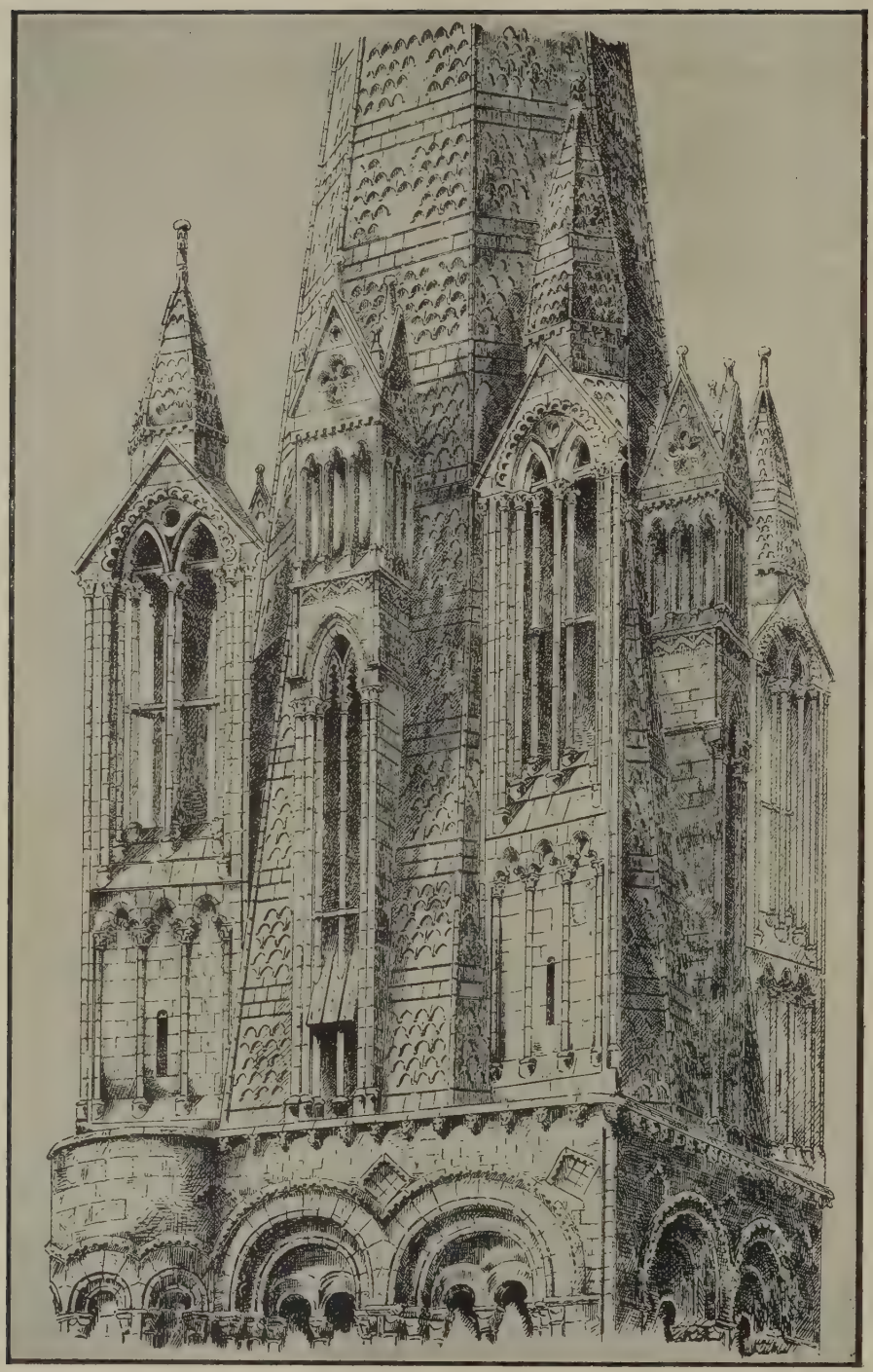
therefore no parapet; that the squinches or concentric arches inside the tower at its angles, which support the oblique sides of the spire, are covered with a broach[1] or sloping pyramid of masonry resting against the oblique sides, so that normally it has no angle pinnacles; and that it has no dormer windows at its base, but, instead, has two or more tiers of spire lights. The object of the spire lights is mainly decorative, but they are of value in lighting the interior of the spire and in ventilating it; stone as well as wood is the better for ventilation.

Though this design ramified greatly in later days, originally it was distinctly the work of a limited local school, called into existence by those who worked in the oolitic limestone of Lincolnshire, Northamptonshire, and parts of adjoining counties; there the spires are thickest on the ground, and there occur the earliest, such as Rauceby, Frampton, Leasingham, and Sleaford (rebuilt) in Lincolnshire, and Warmington (780) and Polebrook in Northants. The early spires are of a rather obtuse angle and have very large spire lights; later, they are more acutely pointed and the spire lights are much less prominent; graceful examples are illustrated from Raunds, Northants (934), and Keystone, Hunts. (934). In late spires of whatever type, the lights, if any were employed, were few and small, *e.g.*, at Louth (954). Considerable diversity prevailed as to the design of the broach. In late examples the broach was large and had a steep pitch, *e.g.*, at Cottesmore, Rutland, and Ewerby, Lincolnshire (935), perhaps the most successful of all the broach spires; outside its native district, the broach was often low, flattened, and insignificant, copying evidently the design of local broach spires in wood; these are common in Gloucestershire; *e.g.*, Leckhampton, Child's Wickham, Slimbridge, and Standish; also Church Honeybourne in Worcestershire.

F. B. Barnack, Northants

In many cases the design of the whole steeple is quite admirable; the tower and spire are not two disconnected designs, but a single homogeneous one; this is because so many of them were built at one effort from base of tower to capstone of spire. But even when the broach spire was not added till the tower had been standing for

[1] The term *broach* is objectionable, but has been in use too long to be got rid of; in mediæval English *broach* is applied to spires in general; as used here, a *broach* is a *squinch-cover*.



B. N. S. B

Caen : Abbaye-aux-hommes

a century, as at Newark and St. Mary, Stamford (934), it was made to fit as if to the manner born; the stone broach spire is certainly one of the greatest successes in English architecture. Its greatest vogue was in the first half of the fourteenth century, to which belong many large and noble examples, such as Newark (937), Ketton, and St. Mary, Stamford. An odd variant of the broach spire should be mentioned, in which a small pinnacle grows out of the centre of the broach; the effect is not unpicturesque; *e.g.*, Graffham, Hunts. (940); Southam, Warwick (938); Wollaston, Northants (938).

The Parapetted Spire.—In spite of its artistic success the broach spire became

F. B. Bernières

F. B. Bretteville

more and more infrequent from the middle of the fourteenth century. To these and to spires of the Normandy type which have dripping eaves, there was a practical objection, that in case any repairs were needed, it was necessary to erect scaffolding all the way up from the ground. If, however, the broaches were omitted, and if also the cardinal sides of the spire were set well back from the edge of the tower wall, then there could be a path[1] all round the tower, upon which scaffolding could be

[1] Sometimes, to get a broader path, it was projected on a corbel table or a cornice; *e.g.*, at Bloxham Stanwick, Oundle (942). In the best English spires, however, *e.g.*, Salisbury and Louth, the oversailing parapet was avoided. Parapetted paths are illustrated from Fleet and Heckington, Lincolnshire (939).

erected, and from which materials could be hoisted from the ground. Again, the pathway needed to be protected; so a parapet was built, that ladders set up against the spire might not slip. Altogether, the addition of a parapet was a great gain from the builder's point of view, and moreover it afforded an excellent field for artistic treatment, being molded or carved, or battlemented or bepinnacled. At the same time it provided a broad band of demarcation between the spire and the tower, the load and the supports; in many a French spire, *e.g.*, Senlis, it is almost im-

W. F. Oxford Cathedral

possible to say where the tower ends and the spire begins; a criticism which is perhaps applicable to the otherwise charming spire of Bloxham, Oxon.

From what has been said, it might be thought that spires with parapets did not come into existence till long after spires with dripping eaves; this is not so; the former were in use quite as early as the latter; there is a parapetted spire of the second half of the thirteenth century at Deene, Northants; the broach spires, however, were long the more popular. Nor did the broach spire expire without a struggle. Some tried to combine broach, parapet, and pathway; this, however, was only possible in large spires like Grantham, Newark, and All Saints', Stamford;

and even then a hole had to be cut through the broach, through which a man could pass, though not ladders (939). Some retained the broach and the parapet, but omitted the pathway at the angles of the tower; *e.g.*, Bingham, Notts.[1] Others retained the broach, omitted the pathway all round, but stuck up a bit of parapet between each broach; *e.g.*, Desborough, Northants. The fine spire of Heckington, Lincolnshire, has broaches, parapets, and pinnacles. But in the end it was realised that pathway and broach were irreconcilable, and the latter disappeared.

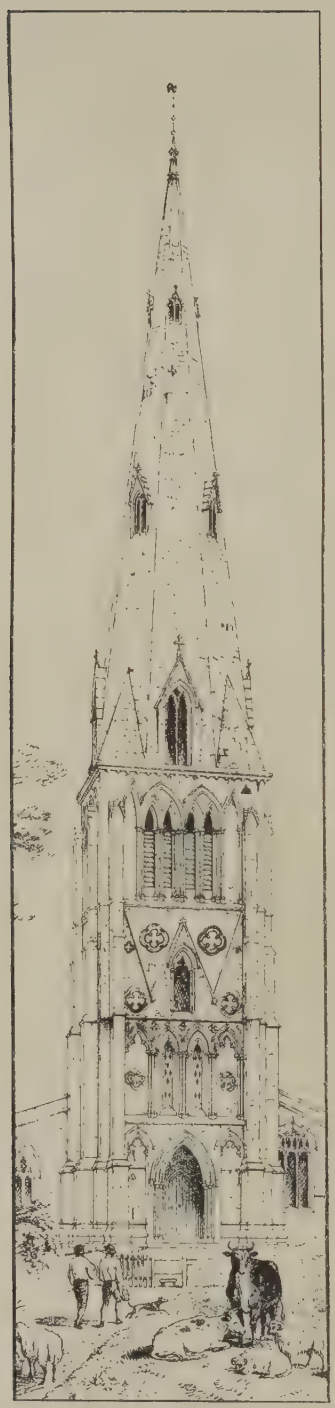
M. B. A. Adderbury, Oxon.

Thus there was left nothing but pathway and parapet, the latter usually battlemented; and from the inner sides of the pathway abruptly rose the spire, as in scores of village churches, and not infrequently in large churches also, *e.g.*, Bridgwater and Hemingbrough (953). The angles of the tower, however, cried to be strengthened, both constructionally and artistically. And so to weight them the builders brought into use once more the pinnacles of the Normandy spires, Oxford cathedral and Witney: where there had been a broach there was now a pinnacle; but the broach had clung to the spire, obstructing the pathway, the pinnacle clung to the parapet, leaving the pathway clear. Great play was made with the pinnacles; they were of all sorts and sizes; square, octagonal, hexagonal, circular, even, triangular, *e.g.*, in the south-west spire of St. Stephen's, Caen (930). Very well, too, a battlemented octagonal turret harmonised with a battlemented parapet; *e.g.*, at Kettering,[2] Leverington (941), and Exton, Rutland (947). But whatever the shape of the pinnacle, a difficulty arose about its position. Usually, in order not to encroach on the pathway, it was just in line with the parapet; which left an aching void between pinnacle and spire, *e.g.*, in the central tower of Lichfield (946). Far preferable was it, artistically, to let the pinnacle cling to the spire, *e.g.*, at Exton (947) and the western towers of Lichfield (946), even though it should be necessary to cut a hole through its base for the pathway.

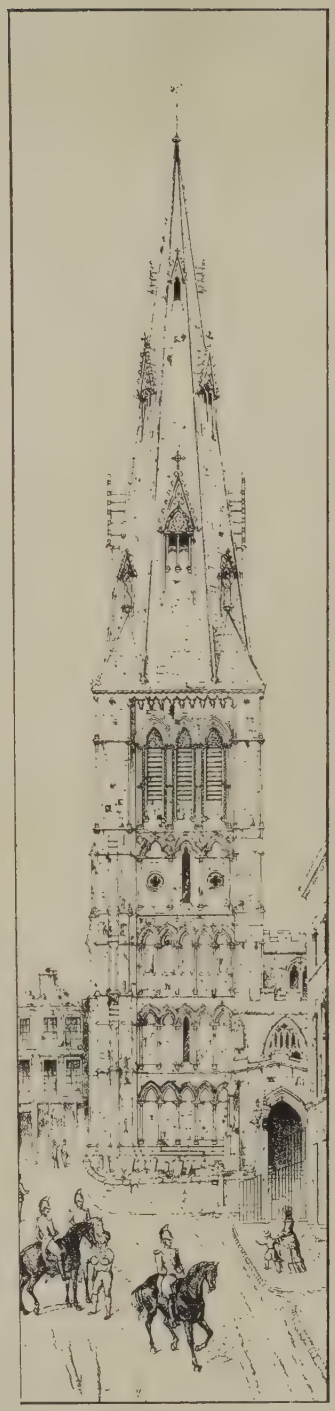
Still greater success was obtained by the use of a pair of pinnacles at each angle of the tower, the rear pinnacle tall enough to peer over the head of the one in front,

[1] Bingham and Desborough are illustrated in *Gothic Architecture in England*, 616.

[2] Illustrated in *Gothic Architecture in England*, 623.



C. W. Raunds, Northants

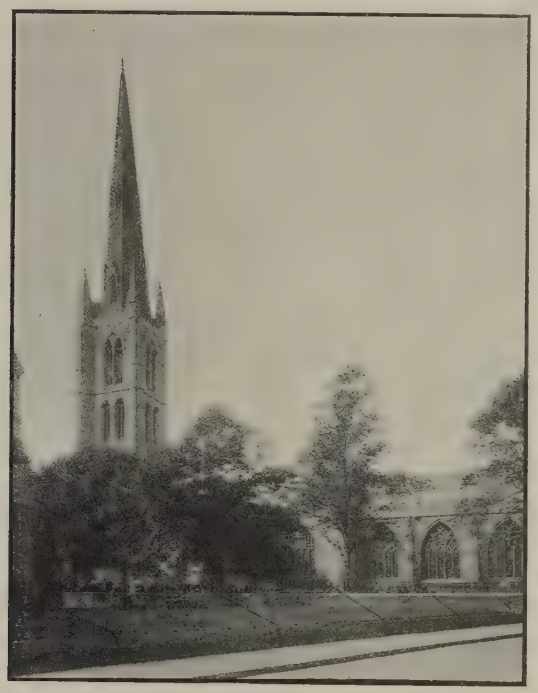


C W. St. Mary's, Stamford

C. W. Keystone, Hants

thus providing a delightful transition by which the eye passed from the vertical lines of the tower to the sloping lines of the spire. Very noble indeed is the treatment of the pinnacles at Salisbury (943), and in that most poetic design, the south-west spire of Peterborough (944), while at Oxford the clustered pinnacles of St. Mary the Virgin[1] make that spire the richest jewel among the towers and spires of that glorious city (940).

Yet one thing was wanted to perfect the transition from front to rear pinnacle and from that to the tower; that was the addition of toy flying buttresses, of which

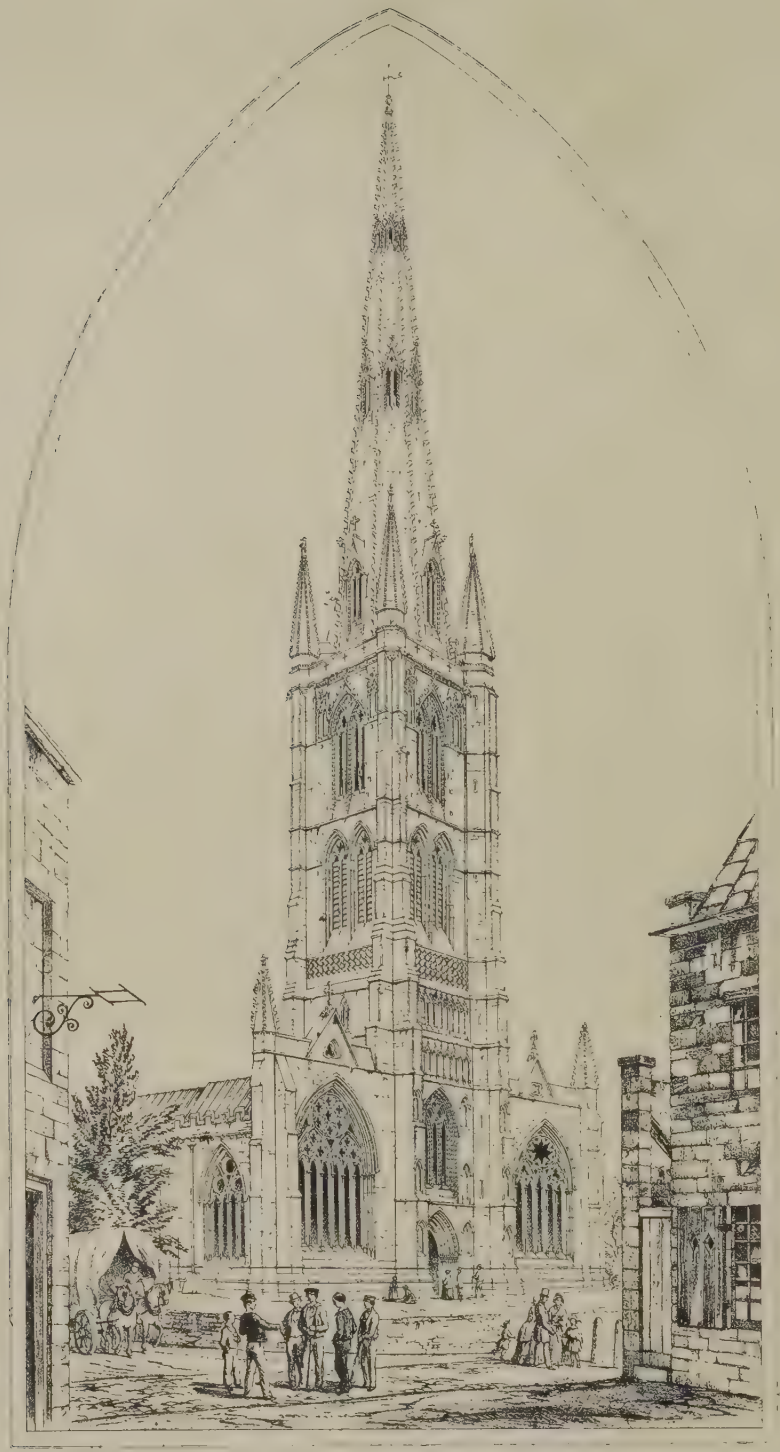


F. B. Grantham

F. B Ewerby, Lincolnshire

delightful examples are to be seen at King's Sutton, Northants (940), St. Mary, Whittlesea (947), and Laughton-en-le-Morthen, Yorkshire (947). It will be noted at King's Sutton that the rear pinnacle is set well back and does not obstruct the pathway. In most instances, however, the flying buttress is employed with but a single pinnacle, and it must be noted with regret that the design is a failure in almost every instance, except at Louth (954), and perhaps at Moulton, Lincolnshire (945); the flying buttress being nearly always too flat, of too weak a curve, and too small and

[1] The illustration shews the spire after the restoration of 1850; that in *Gothic Architecture in England*, p. 631, after the restoration of 1897.



C. W. Grantham, Lincolnshire

insignificant: it pretends to prop up the spire, but, except at Louth, the pretence is a ludicrous failure; especially is this so at Patrington (949). The fact is that the builders were afraid that if they built the flier heavy and strong it would thrust out the pinnacle, as actually happened at Higham Ferrers; the remedy was on the one hand to increase greatly the height and dimensions of the pinnacle, and on the other to lighten the flying buttress by constructing it of open work; thus it is in the slender spire of Louth and in the massive and effective steeple of Weobley, Herefordshire (922).

Even now the course of development was not complete. The four fliers being there, why not let them meet, and poise on their summit the tip of the spire? The earliest existing example is that of Newcastle cathedral.[1] Over the border the "Scottish crown" is found much more often. Sometimes the crown consists of four flying buttresses, *i.e.*, two diagonal arches, viz., at Newcastle, Linlithgow; probably at St. Mary-le-Bow, destroyed in the Great Fire of London; and Sir Christopher Wren's spire at St. Dunstan's-in the-East, London; still finer is the effect with eight fliers, *i.e.*, four arches; viz., Haddington, destroyed by the English in 1548, St. Giles, Edinburgh, rebuilt *c.* 1648 (950), and the Tolbooth crown at Glasgow, seventeenth century. Several picturesque modern spires of this type have been built, *e.g.*, at Paisley, Glasgow, and Sutton, Surrey. Fragile as such a design appears to the eye, the superposed weight of the spirelet gives it adequate stability; in none of his spires did Wren express greater confidence than in that of St. Dunstan's-in-the-East.

One more important phase of spire design remains to be mentioned, that in which there are three stories in the steeple. This type, as we saw, existed at Barnack, Northants, early in the thirteenth century. Probably it was reinvented

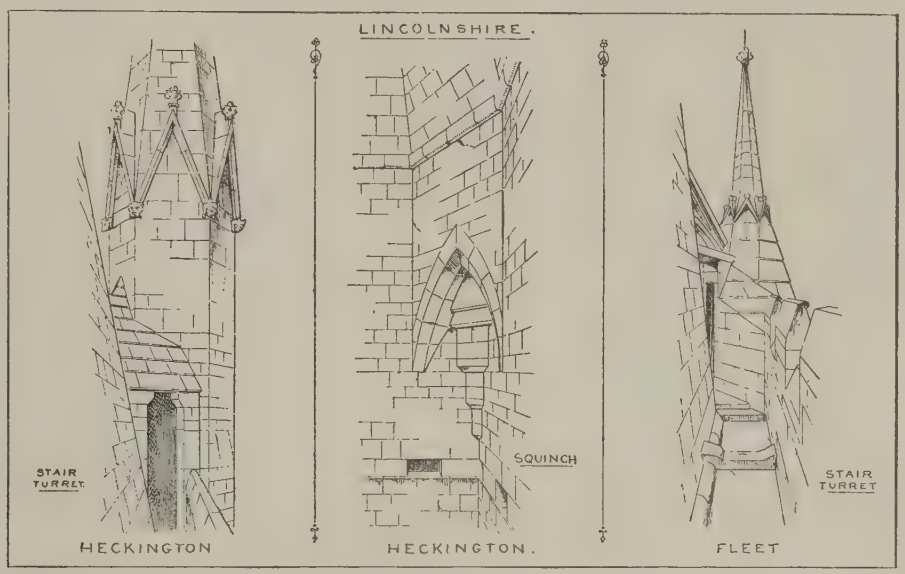
[1] See paper by W. H. Wood in *Journal of the Royal Institute of British Architects*, 3rd Series, xii. 623.

F. B. Newark

C. W. Wollaston, Northants Witney, Oxon. Southam, Warwick

all over again at a later period. When some one hit upon the idea of designing a square tower carrying an octagonal drum, as at Lowick (889) and Fotheringhay (19), someone else was sure to hit upon the idea of crowning it with a spire. To be successful it is not well to mix up tower, drum, and spire French fashion, as is done to some extent at Bloxham, Oxon. ; Patrington, Yorkshire (949) ; Graftham, Hunts. (940), and St. Michael's, Coventry ; the drum should be clearly disentangled, as at Masham, Yorkshire ; Wilby, Northants ; and Exton, Rutland (947).[1]

Of what we may call the plate tracery type, in which the sides of the spire are pierced *ad lib.* with trefoils, quatrefoils and the like, we have fortunately few examples ; there are two such spires in the town churches of Caen and one at



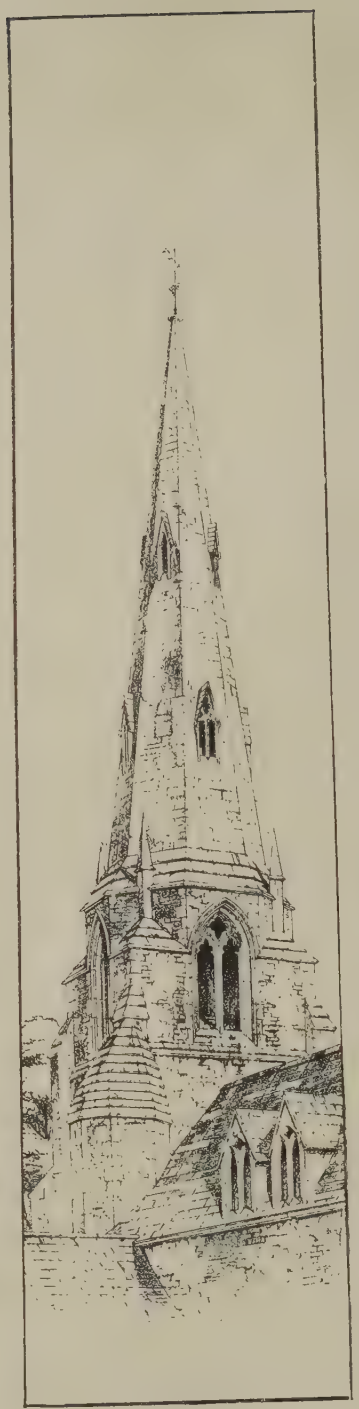
E. S.

Bretteville (931), two more occur in the west façade of the collegiate church of St. Lô, Normandy ; English examples occur at Solihull and elsewhere. On the fairy-like spire of bar tracery—the supreme masonry achievement of Flamboyant architecture—our builders never ventured. Among the most important examples are the north-west spire of Chartres cathedral and the western spires of Notre Dame de l'Epine, near Chalons-sur-Marne, that of Freiburg in the Black Forest, those of the cathedrals of Antwerp, 404 ft., and Strassburg, 466 ft. high, those of Burgos, Spain ; Batalha, Portugal ; St. Maclou, Rouen ; and the modern spires of Ulm, 529 ft., and of Cologne, 512 ft. high.

Turning now to *spire construction* in general, it has already been pointed out that a spire is built in horizontal beds, and not with joints at right angles to the slope

[1] For illustrations see *Gothic Architecture in England*, 635 (Coventry), 629 (Wilby).

C. W. St Mary, Oxford



C. W. Graffham, Hunts.

C. W. King's Sutton, Northants

of its sides, which would produce serious outward thrusts, as in other forms of vault. The earlier spires, such as those of Barnack (929) and Oxford cathedral (932), from reasons of timidity, were built with their sides at an obtuse angle; and obtuseness of angle was characteristic of broach spires in general. Ewerby is an exception (935); this was not because of anything inherent in the nature of this type, but because broach spires, as a rule, are of comparatively early date. The tendency, however, was to build the spire at a more and more acute angle; an angle of 85° at the base is common in later spires. From reasons of distrust again, the earlier spires were built needlessly thick; the twelfth-century spire of Chartres cathedral is $31\frac{1}{2}$ in. at the base, and $11\frac{3}{4}$ in. at the top. The bottom courses of the spire of Salisbury, 400 ft. high, are 24 in. thick; those of the spires of Kettering and St. Mary, Oxford, 14 in.; those of the lofty spire of Louth, 294 ft. high, are but 10 in. thick. The top courses of Salisbury spire are 9 in. thick; those of St. Mary, Oxford, 6-7 in.; those of Kettering, 6 in.; those of Louth only 5 in. To give more stability, the upper part of the spire was usually built solid; this solid block, moreover, made it easier to fit the bar securely on which the vane revolved. When the vane or weathercock jams, there is much wind pressure against the upper courses of the spire: nowadays it is made to revolve on ball-bearings.

Protection of the spire and the bells from lightning is now secured by means of a conducting rod, usually of copper. The mediæval builder employed a different

H. N. W. Leverington, Cambs.

F. B. Oundle, Northants

method. In 1315, a new cross, well gilt, was set on the top of the spire of Old St. Paul's, London, with great and solemn procession, by Gilbert de Segrave, Bishop of London, and relics of saints were placed in it, "in order that the omnipotent God and the glorious merits of His saints, whose relics are contained within the pommel of the cross, might deign to protect it from danger of storms." At Salisbury, while making some repairs in 1762, the workmen found a cavity on the south side of the capstone of the spire, in which cavity was a leaden box, enclosing a second box of wood, which contained a piece of much decayed silk or fine linen, no doubt a relic placed there to avert lightning and tempest.

The chief difficulty in spire construction was how to provide support for the oblique sides of the spire internally. If the spire was diminutive, it might be enough to throw a bar of stone across the angle. Or the angle might be filled in with corbelling, as at Tong church, Salop (952). Or the corner walling of the belfry might be sloped off, as in the curious design of Laughton-en-le-Morthen (947). Or the angle might be vaulted, as in St. Michael's, Coventry. Most often, the corner was bridged with a single arch, as at Canon's Ashby (952) and Oxford (951);

C W.

Salisbury Cathedral, from North-east

C. W. Peterborough Cathedral, from South-west

or, better, with concentric arches, as at Salisbury (952) and Louth. In the latter the spire was brought down considerably below the parapet, the bases of the squinches being in a line with the top of the belfry windows; much additional weight being thus brought to steady the base of the spire. At Heckington, Lincolnshire, there is a single pointed arch across the angle, and corbelling as well (939).

Of *spire design* a good deal has been said already. At first, here and there a round tower was surmounted by a round spire; but round spires were difficult to build in wood, and in stone were very seldom employed except in the district of Périgueux and the Charente in the south-west of France, where round spires of stone are characteristic.[1] Nor do square spires occur in England, except where they are so low as to be little more than tower roofs. Very early everyone settled down to the idea that the only right plan of spire was the octagonal, whether it crowned a square tower, or an octagonal one, as at Stanwick, Northants, and Wickham Market (920), Suffolk.

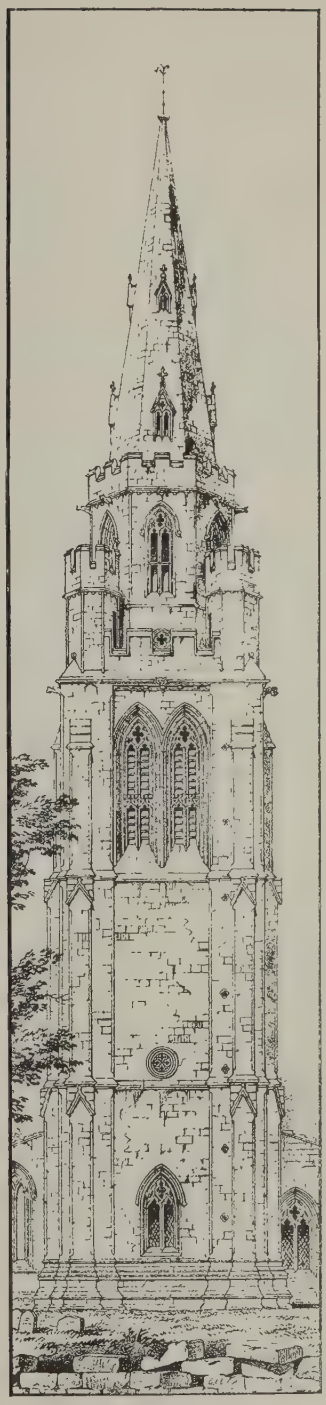
A very important matter to settle was the relative height of tower and spire. If the most successful examples be compared it will be found that tower and spire are of about the same height; this is so in the best spires of Northants, and at Louth, where the tower rises 147 ft. above the floor, and the spire 147 ft. above the tower (954). Unfortunately, a very large number of steeples might be mentioned in which the spire is considerably higher than the tower; one of the worst is Hemingbrough, Yorkshire (953). The great success of spire design in Normandy is due to the fact that her tall spires are almost always poised upon tall towers (567).

[1] Fine circular spires on square towers, designed by Mr E. W. Godwin for Cork cathedral, are illustrated in the *Building News*, 7th July 1871.

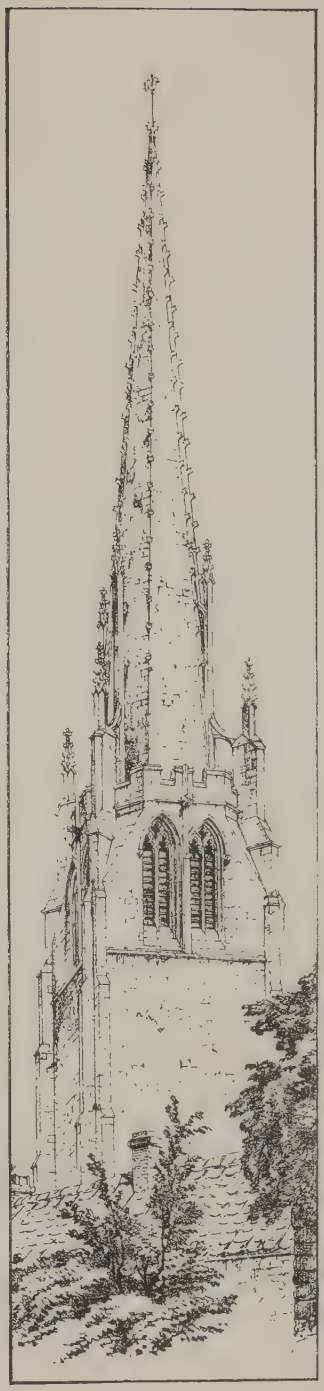
E. S. Moulton, Lincolnshire

C. W.

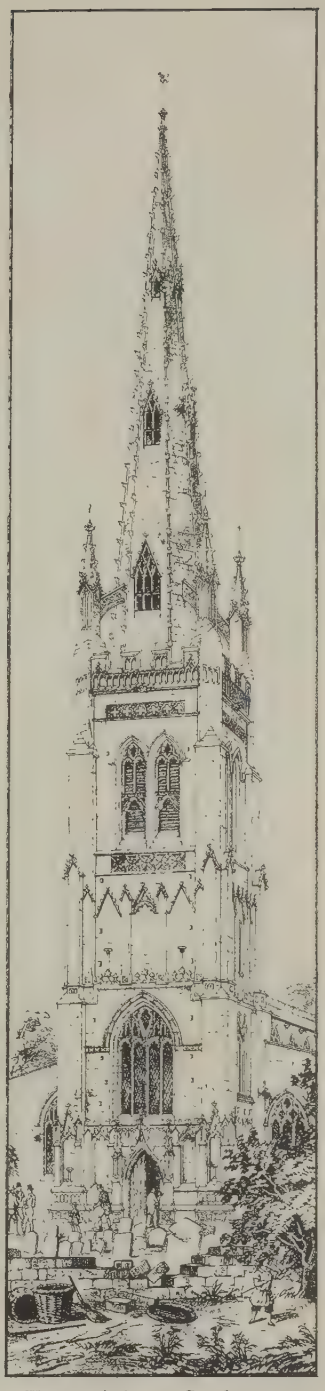
Lichfield Cathedral, from South-west



C. W. Exton, Rutland



C. W. Laughton-en-le-Morthen, Yorks.



C. W. Whittlesea, Cambs.

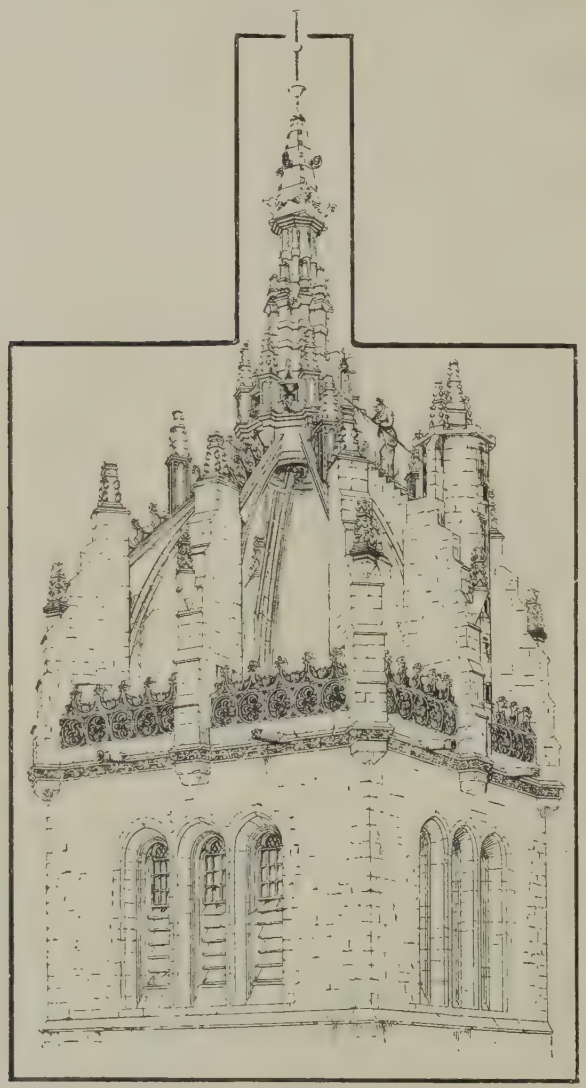
The difference between the early spire design of England and Normandy may be due to a difference of origin. In England the earliest spires no doubt were of wood, and a great number of them were built on the low towers of parish churches. When

F. B St. Mary Redcliffe, Bristol

spires of stone were attempted, *e.g.*, in Oxford cathedral and Warmington, they naturally copied the proportions of village steeples. But in Normandy the great spires of St. Stephen, Caen, shew no sign of a timber origin; their origin is not

F. B. Patrington, from South-east

to be sought in parish churches, but in the turrets that weighted the angles of the Greater churches—turrets such as still survive in St. Stephen, Caen, and in Peterborough cathedral (944). Moreover the Romanesque towers of the great Caen



J. H. St. Giles, Edinburgh

church, on which the spires were to stand, are very lofty; no less than six stories from the ground (930). These noble early steeples must have made a profound impression on the whole province; an impression which was never effaced and which

expressed itself far and wide in tall slender spires set upon tall slender towers. Only one serious change was made; it was that which we saw in the façades, cutting down the six or seven stories of Romanesque to the normal three of Gothic. But the uppermost of the three stories of a tower in Normandy was designed with an elongation of lightness quite unknown in England (931). An evolution, not dissimilar, may be noticed in the English steeples; *e.g.*, compare the thirteenth-century tower of St. Mary, Stamford (934), with the sixteenth-century one of Louth (954). Beside the regrettable tendency to build our towers too low, there was at times a failure to disengage them from the façade: the superb western spires of Lichfield rest on

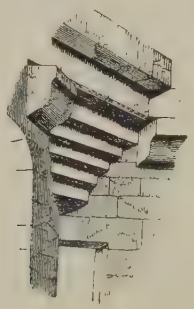
J. P. Oxford Cathedral

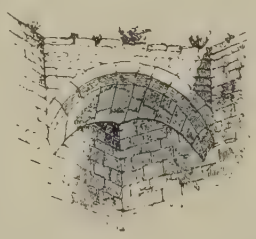
belfry stages of towers, the lower parts of which are lost in the façade (946). The same mistake was sometimes made when the western towers had no spires; *e.g.*, in York minster; at Beverley, on the other hand, the western towers are towers all the way to the ground.

A square tower varies in breadth according as it is seen in elevation or perspective: when we see two sides of it, it is broader than when we see only one. It follows that, in relation to its tower, a spire will look more slender when the tower is seen in perspective than when it is seen in elevation. This is so at Louth, where the west face of the steeple forms the termination of Westgate, the only street from which, till lately, a view of the whole steeple was obtainable; a heavy broach spire

in this position would be intolerable, successful as it might be if seen diagonally, as at Ewerby (935).

Long lines, whether horizontal, vertical or oblique, tend to seem hollow in the middle. The Greeks knew this, and even arched the steps and other horizontal members of the Parthenon, as well as gave a bulge or *entasis* to the columns. So also some spires have a slight entasis midway, usually only about 1 in 60; where this is much exceeded, the effect is monstrously ugly; *e.g.*, at Welbourn, Lincolnshire (955). In some cases the entasis is accidental, the spire having been shortened





J. P. Tong, Salop Canons Ashby, Northants

after damage by storm or lightning, *e.g.*, at Brant Broughton and Caythorpe, Lincolnshire.[1] At Oundle the spire has been lengthened at a recent restoration (942). That genius among masons who designed Louth spire,[2] got the entasis by increasing the size of the crockets about one-third of the way up.

[1] Grantham spire has been somewhat shortened.—A. H. T.

[2] John Cole was master mason from 1501 to 1505-6. Lawrence and William and Christopher Scune were master masons from 1505-6 to 1515. The accounts have the item: "Paid Lawrence, mason, for riding to his master (? John Cole) in the North country for to spur him whether he would make end of the broach, and he said he would deal no more with it, but he shewed his counsel, 6s. 8d." Also for "riding to Boston to speak with master mason to make end of the broach, 2s."

Sometimes the edges or arrises of the spire were left plain, especially in early broach spires ; *e.g.*, at Patrington (949) ; at a distance, however, the octagonal plan of such a spire is difficult to realise ; rather it looks circular. So, quite early, the arrises were emphasised by a tiny roll or "bead," *e.g.*, at St. Mary's, Oxford (940).[1] In the first half of the fourteenth century, a band of ballflower was occasionally employed, *e.g.*, at Salisbury (943) and Lichfield (946). In later spires, however, the

G. H. Hemingbrough, Yorkshire

arris was given a band of crockets, which had the practical value that they provided a series of steps by which a steeplejack could ascend to the weather-cock when it got jammed. At first the crockets were set rather close, as at Grantham (936) ;

[1] Beaded pinnacles occur at the beginning of the thirteenth century in the west front of Peterborough (944). At Darlington only the lower part of the spire is beaded ; the upper part was rebuilt in 1750 without any beading.

F. B. Louth, Lincolnshire

afterwards as far apart as the steeplejack could stride, *e.g.*, at Louth (954).

The sides of the spires also were often left plain, *e.g.*, at Patrington (949). Sometimes they were cut into slices by horizontal string-courses, *e.g.*, at Lichfield. Sometimes carved bands were employed; three bands are tolerable at Salisbury (943), but King's Sutton is better with one (940); best of all are the spires that have no strings or bands at all. Another unsuccessful variation was to pierce the sides of the spire with quatrefoils, etc.; *e.g.*, Fleet, Lincolnshire, and Solihull, Warwick.[1] But the favourite design was to pierce the sides with windows; at first large, later on quite small; these were disposed in all sorts of ways; "quot homines, tot fenestrae"; at Lichfield is seen the apotheosis of the spire light: a great contrast to Louth.

As regards the distribution of ornament, as a general rule, it climbs up gradually from the pavement till it reaches its full culmination at the belfry stage or the spire base, or both, and then gradually recedes up the spire; to this gradation of ornament the Lichfield spires are the chief exception. In some few excellent designs the tower is regarded merely as a pedestal to the spire, and the wealth of ornament concentrated at the spire base is shewn up the more clearly by the plainness alike of the tower below and the spire above; *e.g.*, at St. Mary's, Oxford, and Patrington, in neither of which are there spire lights, and the Patrington spire is not even allowed a "bead" on the arrises. At Peterborough, King's Sutton, and Louth rather more ornament is bestowed on the spire base than on the belfry, though both are rich. At Salisbury and Grantham belfry and spire base share honours. At Newark, St. Mary Redcliffe, and Bloxham, the belfry has the best of it. At Weobley the tower is absolutely plain; the belfry, by exception, being placed in the spire (922).

And so we leave the spires of England. We

[1] Solihull is illustrated in *Gothic Architecture in England*, 626; Fleet in Brandon's *Parish Churches*, 51

have lierne vaults and fan vaults, geometrical and flowing tracery, delicate and refined moldings, bay design, towers and open roofs that will match the world; to these glories of Old England we now add the spires. We conclude with a sonnet on the queen of English spires, that of Louth. It should be premised that Louth, with its pleasant Georgian houses and red-tiled roofs, lies in a little valley where a trout stream debouches into marshland, stretching far out to sea; to the west rise the Lincolnshire Wolds, here well wooded. The spire of Louth church is reached as usual by a newel staircase, the upper part of which is unlighted. The contrast is all the more striking when one emerges from the darkness of the upper part of the stairs to the parapetted path round the foot of the spire, and suddenly there bursts into view the broad expanse of hill and wood and the illimitable marsh.

"Step over step, and round on weary round,
Faint, fainter grows the murmur of the street,
While each dim latticed loophole's due repeat
Shows further sunk the still-receding ground;
Light dies away, and dies away all sound,
Save slow and slower tread of toiling feet,
The solitary clock's dull ceaseless beat,
And whispering echoes in the stillness drowned.
But sudden bursts the sun, blows heaven's free air,—
There far abroad in the calm noontide ray
Lie fertile plain, grey wold, and woodland gay,
Roofed with one sweeping vault of azure clear;
Weakness forgot and sorrow cast away,
Earth shows more beautiful, Heaven shines more near."[1]

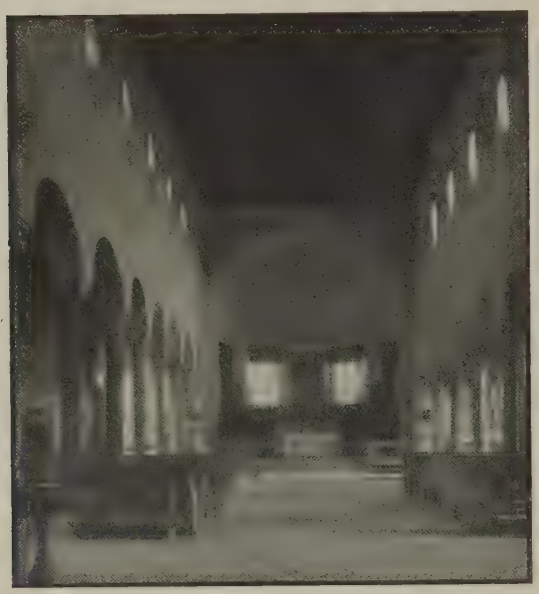
[1] Cresswell, J. J.—*Sketches and Sonnets Illustrative of the Spire of St. James' Church, Louth.* London, 1906.

W. M. Welbourn, Lincolnshire

APPENDIX

EARLY CHRISTIAN BASILICAS—ORIENTATION—DEVIATION OF AXIS

FROM the first, and throughout the Middle Ages, the Church of England was in intimate relation with Rome, and from Rome derive the traditions of the English Church; the early Christian churches or basilicas of Rome are the *incunabula* of English church architecture. Of these Roman basilicas the most important that survive were built in the time of the Emperor Constantine, subsequent to the Peace of the Church in 312 and prior to his death in 336. Though these are the oldest examples, they are uniform in essentials both as to plan and elevation. It follows that they cannot be the earliest that were built; church building must have been going on for a considerable time before a definite normal type could be standardised. Of this there is adequate documentary evidence. At Edessa a Christian church was destroyed by a flood in 202. At Rome in 260 the Emperor Gallienus directed forty churches to be restored to the Christians. In Gaul we have the evidence of Lactantius that during the Diocletian persecution (305-306) Constantius Chlorus spared the lives of the Christians in his province, but demolished their churches. In the middle of the fourth century we find Eusebius writing of the happy days before the persecutions began: "Who can tell the infinite numbers that ranged themselves daily under the banner of Christ, or count the number of churches that were built in every town?" As to our own country, Tertullian, writing in 208, says that "in all parts of Spain, among the various nations of Gaul, and in *districts of Britain* inaccessible to the Romans but subdued to Christ, in all these the kingdom and name of Christ are venerated." Origen, writing in 239, says, "The power of the Saviour is felt even among those who are divided from our world, *in Britain*." Plainly, before Constantine's time, there were Christians in Britain; and if Christians, churches. But there is direct evidence as to the early existence of churches in Britain. Bede writes that Augustine (*c.* 600) recovered a church in Canterbury which he learnt had been originally constructed by Roman believers, and made it his cathedral. He also writes that when Ethelbert, King of Kent, had been baptized, he gave the Christians of



F. B. Ravenna: S. Agata

Kent permission "to build and *restore* churches throughout the land"; the use of the term "*restaurare*" proves that there were still in Kent churches, most, if not all, doubtless in ruin, which had been built before the last Roman soldiers left Britain in 407 A.D. It may be taken as proven, then, that both in Britain and throughout the Roman Empire there were numerous churches in use, except during short periods of persecution, before the year 312.

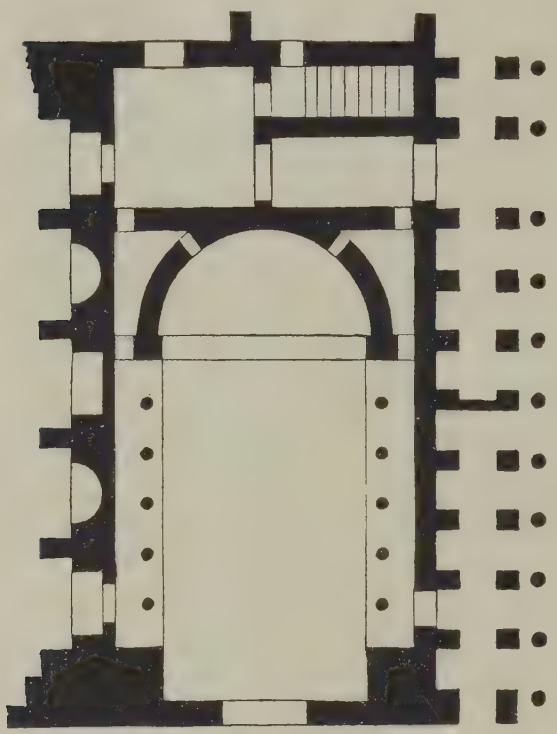
The typical early Christian church or basilica of the fourth century at Rome and of the fifth century at Ravenna was in plan a building with a lofty and broad oblong nave separated

D. A. Interior of S. Sabina Rome

from low and narrow aisles by ranges of columns, and having to the east a semicircular apse of one story. The nave was so much more lofty than the aisles that in its clerestory walls ranges of windows could be and were inserted. Both nave and aisles had wooden roofs. It was a cheap and practical type, roofing a large area and providing good lighting at a very moderate expense. One of the least altered basilicas at Rome is that of S. Sabina, which was founded in 425; work was going on in it from 432 to 440 A.D. The basilica of S. Agata at Ravenna also dates from the fifth century (956).

As to the origin of this sharply defined type of building there has been much controversy. The obvious suggestion would be that it is derived from the pre-Constantinian churches of

Rome, and that as without exception all of these have perished, and we know nothing about their design except that some at any rate had an apse, no certainty as to origin is obtainable.[1] The loss, however, of all examples earlier than 312 A.D. has not stopped conjecture. If we are to conjecture, it would, however, be well to bear in mind that the solution of the problem of origin is not to be found in any one secular building of Pagan Rome. No theory hitherto advanced fully explains at once the plan of the church, its elevation, and the form of its eastern limb. The probability is that the Christian basilica is a blend or compound of various Pagan types. As for the ground plan, a favourite theory is that it is a reproduction of the more ancient type of Roman mansion, which had an open-air courtyard or *atrium* in the centre, small rooms, *alae*, on each side, and a *tablinum* at one end. When the faithful met for worship in such mansions, an altar would be set up in the *tablinum*, and the congregation would occupy the *atrium* and *alae*. It is suggested that since for the first four centuries of Christianity the faithful were in the habit of meeting in the mansions of the wealthier Roman converts, the *atrium* and *tablinum*, hallowed by old association, would naturally be reproduced in the first churches built. This may be so; but if the ground plan of the church be assumed to be suggested by that of the mansion, there is the awkward fact that the *tablinum*, being rectangular, cannot be the origin of the semicircular apse. Moreover the church was two stories high and was roofed, whereas the mansion was normally a one-story building and the *atrium* was open to the sky.



D. B. Palace of Domitian, Rome

Another theory is that the church was a reproduction of the secular basilica of Pagan Rome, which was usually an oblong building with lofty walls and clerestory lighting, and was surrounded by aisles; just such a building as was the Royal Exchange in London before the glass roof was put on it. This theory accounts for the oblong shape of the nave, for the low flanking aisles, for the colonnades, for the two stories, and for the clerestory windows. On the other hand the secular basilica, like the Royal Exchange, had aisles at the ends as well as at the sides; there was very rarely an apse at the end,[2] nor was there ever

[1] For a discussion of the Christian basilica, as well as of church work executed in Carlovingian times, reference should be made to the third chapter of Comte Robert de Lasteyrie's *L'architecture religieuse en France à l'époque romane, ses origins, son developpement*, Paris, 1912.

[2] An exception is to be found in the foundations of a large building excavated in Alesia, which was probably a secular basilica; this has an apse at each end. There is no apse in the great Basilica Julia at Rome.

a transept, such as several of the basilican churches possessed, and while the Christian basilica was normally entered from the west end, the secular basilica had side entrances.

Much closer is the resemblance of the Christian church to the *private* basilicas; *i.e.*, to the great halls found in Roman mansions. It may be objected that there were no such halls except in the very largest mansions of the richest and most important members of the Roman aristocracy (in these they certainly did exist; for Vitruvius expressly mentions as necessary to a first-class Roman house "libraries, picture galleries, and *basilicas*"), and that the Christian faith recruited its adherents among the poor and lowly and had no connection with the aristocracy and their palaces. This, however, is not so. Very quickly Christianity found adherents among the very noblest families in Rome. Even in the first century of the Christian era the Church made converts in the great *gens Aurelia* and even in the Imperial *gens Flavia*, from which came three emperors. It is certain, therefore, that from the first century the Christians of Rome were acquainted with the great Roman mansions and with the halls which they contained. Now, what were these halls like? We are not left to conjecture. Vitruvius, in describing Roman mansions, divides them into two classes, which he styles Corinthian and Egyptian respectively. Both have halls, he says, with colonnades, which in the former are one story, in the latter two stories high; moreover the interspaces of the upper rows of columns of the latter are pierced with windows; *i.e.*, they had clerestories.[1] It is difficult not to connect the plan and elevation of the Christian basilica with these aisled and clerestoried halls. The misfortune is that only a single example is known which can be reasonably identified with Vitruvius' "Egyptian house"; it forms part of the vast palace of the Cæsars on the Palatine Hill (958). It has a broad nave and narrow aisles; it *may* have had a clerestory; at one end of the nave is an apse; at the opposite end is the doorway. Such halls as this would be eminently suitable for the meetings of the Church, and doubtless in times of persecution it would be the great hall of the Roman mansion which would be selected for Christian worship in private. Such a hall, hallowed by the associations of the white-robed army of martyrs, would, above all others, commend itself as the type of church to be built when persecutions ceased.

In the earliest basilican churches both altar and clergy seem to have been crammed into the little apse, the spacious nave being reserved for the faithful. This means that originally the main function of the basilica was to provide facilities for congregational worship; *i.e.*, the basilica was planned after the same fashion as a mediæval or modern parish church, and not after the manner of a great monastic or cathedral church. In fact, if the plan of such a basilica as S. Agata, Ravenna, be compared with the plan of the most common type of English mediæval parish church, it will be found similar in essentials, except that in the mediæval church the chancel is longer and is rectangular instead of being apsidal (57).

Normally, the Christian basilica had its altar at the east end. As the Mahommedan turns to Mecca, so the Christian in prayer stood turned to the east; "Cum ad orationem stamus, convertimus ad orientem," says Tertullian. But correct orientation of the churches was not *de rigueur*. St. Paulinus of Nola recognised that the normal orientation was to the east; but in building his church there he did not hesitate to turn it to the south-west; "prospectus basilicæ non, ut usitatior mos, orientem spectat." Some of the most important

[1] "Supra epistylium, ad perpendiculam inferiorum columnarum, imponendæ sunt minores quarta parte columnæ—et inter columnas superiores fenestræ collocantur." R. de Lasteyrie, *Architecture romane*, 65. Such an elevation actually exists in the ruined church of Tebessa, Algeria, illustrated in *ibid.*, 82.

and earliest of the basilicas had the apse turned to the west; *e.g.*, Old St. Peter's, St. John Lateran, St. Paul's *extra muros*, St. Clement, and, originally, San Lorenzo, Rome. But in the Eastern Church St. Sophia, Constantinople; St. Apollinare Nuovo, Ravenna, and others had their apses turned to the east. The Western Church was slow to adopt a correct orientation; even in the ninth century it was noted by Walafrid Strabo that the practice, though general, was not universal. In Italy indifference to orientation survived longer than anywhere else. Among late examples of incorrect orientation may be mentioned Rievaulx abbey church and the modern cathedral of Liverpool, both of which, owing to exigencies of site, are orientated north and south. The Anglo-Saxon cathedral of Canterbury, *c.* 950, was very curious in plan; like several German churches, it had an apse at each end; but the patriarchal chair was in the western apse; it looks, therefore, as if this was the original and perhaps the only apse, and that the cathedral was at first orientated to the west (30). A parallel may be noted in Nevers cathedral, the Gothic portion of which has an eastern apse; but to the west is the original Romanesque apse raised above a crypt; the date of this and of the two adjoining bays of the nave is 1028 A.D. The plan with an apse at each end is shewn at St. Gall, in the famous drawing executed in the ninth century; it seems to have had a considerable vogue in the ninth and tenth centuries, and long survived in the great Romanesque churches of the Rhineland; *e.g.*, Fulda, Hildesheim, Bonn, Laach, Mayence, Trèves, Worms.

In a good many churches, ancient and modern, it has been noted that the chancel is not in the axis of the nave, but is slightly askew, usually to the north. Modern symbolists with great unanimity have found this deviation of the axis of the church significant of the bending of the dying Saviour's head on the cross.[1] In reply it may be urged that in a considerable number of instances the deviation is not to the north but to the south. Secondly, though the older symbolists like Durandus, found, or thought they found, an esoteric meaning in every member of a church, yet they unanimously pass over in silence this deviation of axis. The explanation is that the deviation was wholly unintentional. Not many years ago a chancel was added to a modern church, and when it was completed, it was found to be out of axis. If that could happen with modern instruments of precision, much more likely is it that chancels would be set out inaccurately in the Middle Ages. Moreover, as a rule, when a new and larger chancel was being built, the old chancel was left standing for a time and the new chancel was commenced further to the east; in such a case it could not but frequently happen that the new chancel would fail to line correctly with the nave.[2]

[1] "Jesus is dead; His head is at the altar; His outstretched arms are the two transepts; His pierced hands are the doors; His legs are the nave where we are standing; His pierced feet are the door by which we have come in. Now consider the systematic deviation of the axis of the building; it imitates the attitude of a body bent over from the upright tree of sacrifice, and in some cathedrals—for instance, at Reims—the narrowness, the strangulation, so to speak, of the choir in proportion to the nave represents all the more closely the head and neck of a man, drooping over his shoulder when he has given up the ghost." (Huymans, *The Cathedral*, 108.)

[2] The orientation of churches is discussed at length in Mr Walter Johnson's *Byways in British Archæology*, chap. v., London, 1912. The hypothesis of intentional deviation of axis has been refuted by Comte Robert de Lasteyrie in a paper on *La déviation de l'axe des églises est-elle symbolique*, printed in the *Mémoires de l'Academie des inscriptions*, vol. 37, pp. 277-308.

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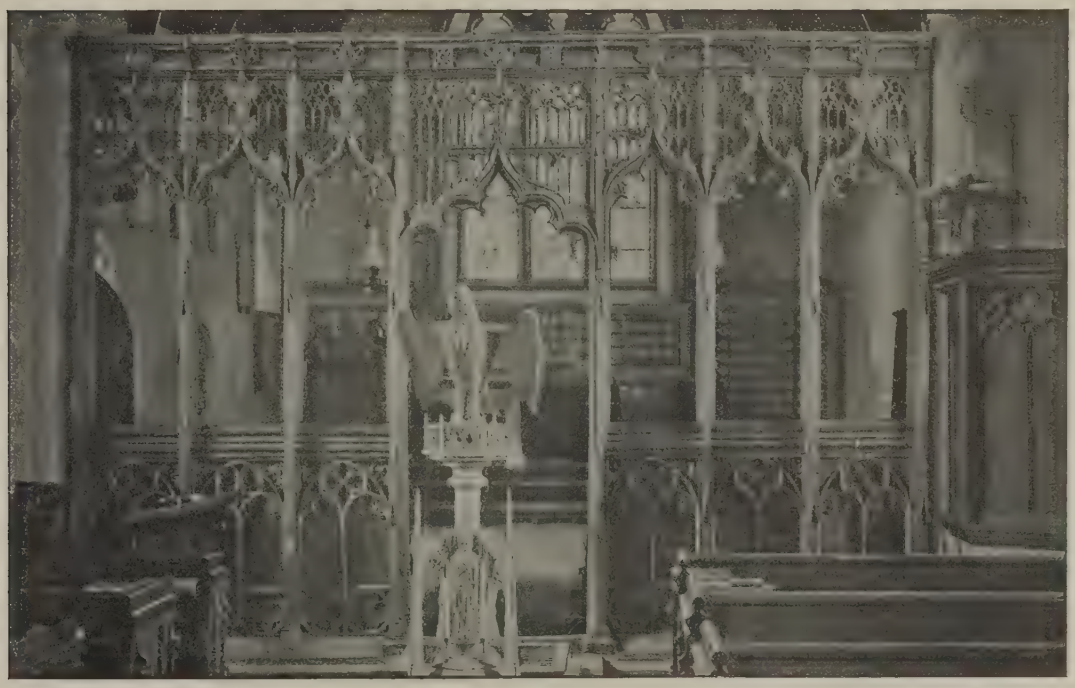

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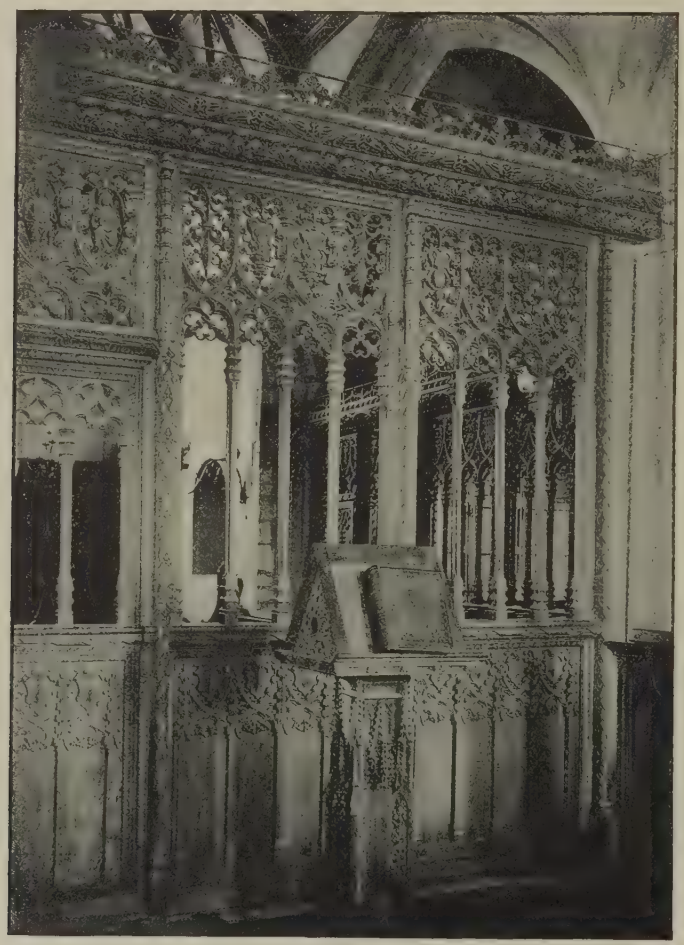

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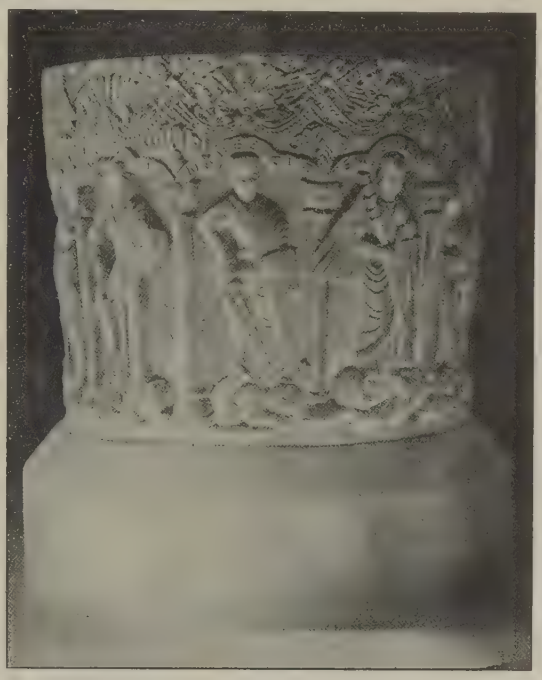

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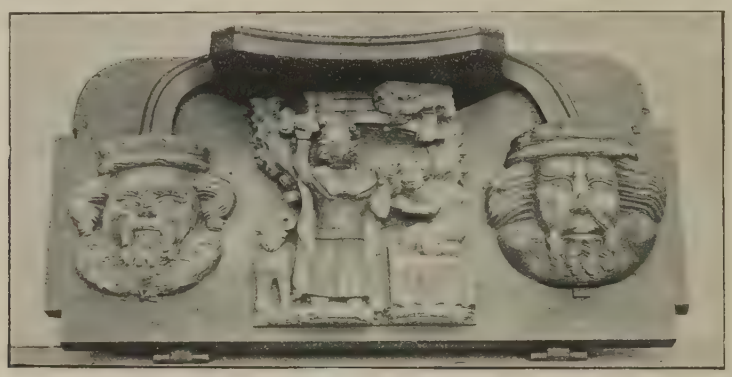

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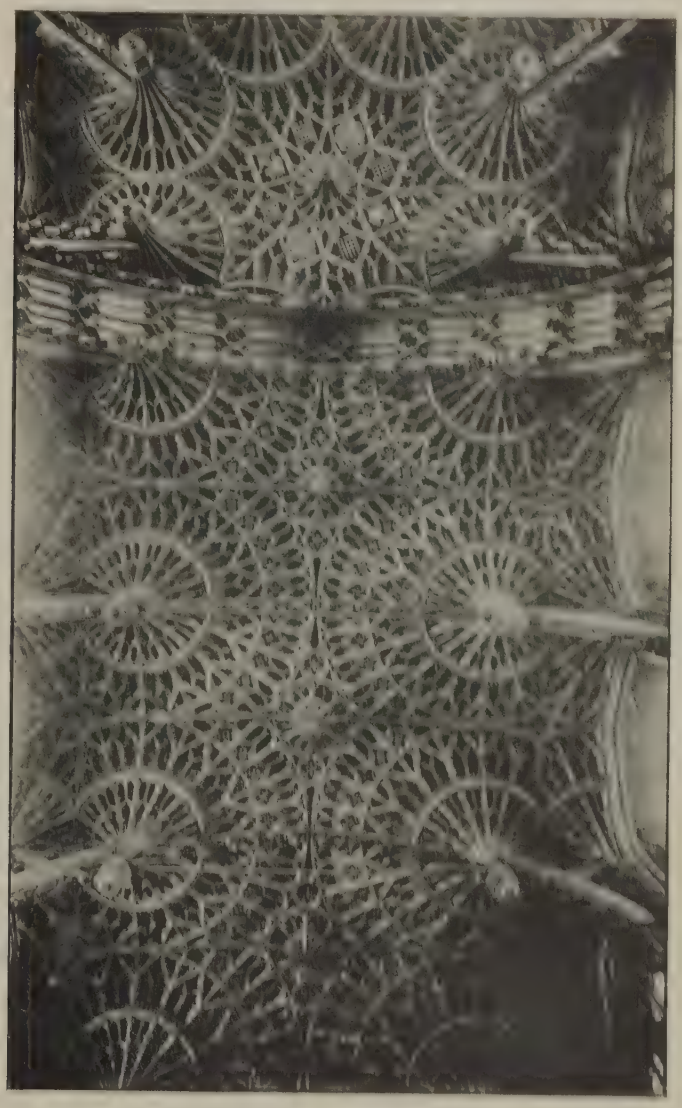

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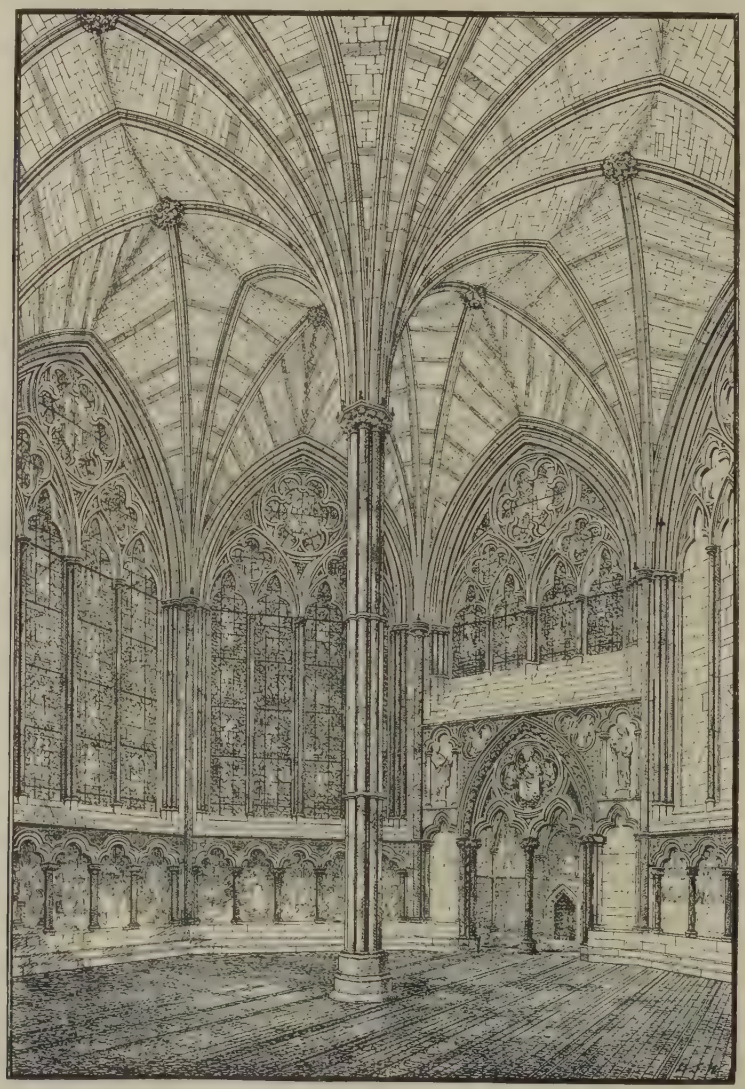

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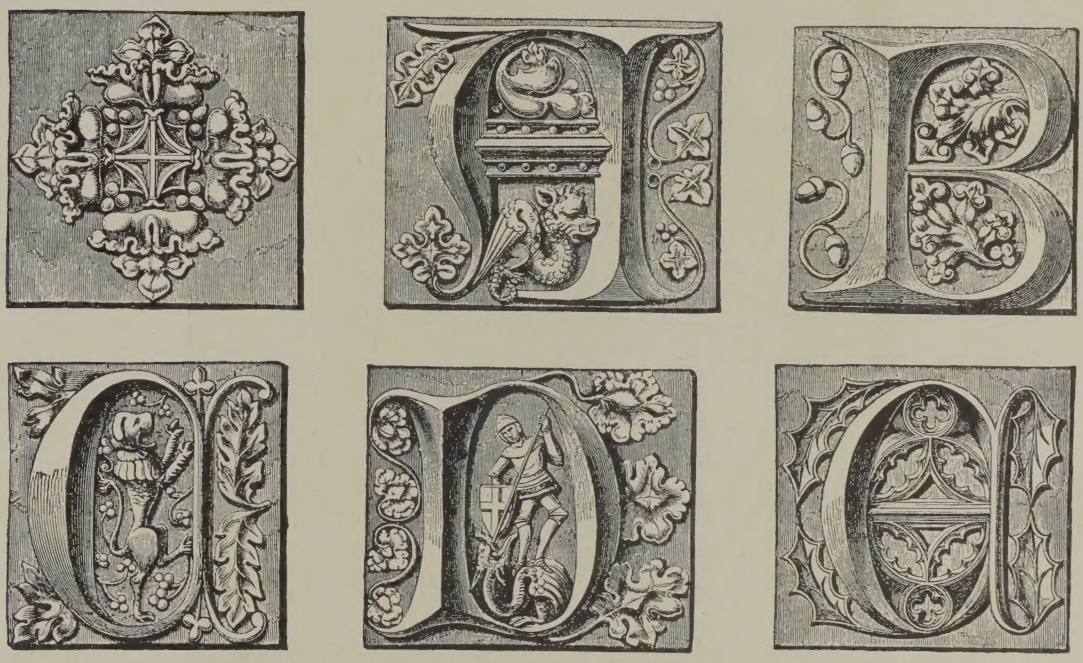

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